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THE DIRECT CONTRIBUTION OF EDUCATIONAL
PSYCHOLOGY TO TEACHER TRAINING

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Yearbook XX of
THE NATIONAL SOCIETY OF COLLEGE
TEACHERS OF EDUCATION



THE DIRECT CONTRIBUTION OF EDUCATIONAL PSYCHOLOGY TO TEACHER TRAINING

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CHAPTER I

INTRODUCTION: THE 1932 YEARBOOK

Psychology, viewed as the science of human behavior, has long occupied an honorable place in the teacher-training program. Sharing popularity for many years with the history of education, it has long since outstripped that discipline in the vitality of its contributions to education and the breadth of its appeal to the interests of students and teachers alike. Probably most teacher-training specialists will concur in placing practice teaching and psychology as basic items in any well-organized teacher-training program.

PSYCHOLOGY IN THE TEACHER-TRAINING CURRICULUM

In the fifty years of its scientific existence, psychology has developed rapidly in both its pure and applied fields. Entering the teacher-training program in its pure mode, and taught by instructors trained as psychologists rather than as educationists, its development within the field of education has been spectacular. Not only has the laboratory aspect of psychology been developed within teacher-training institutions, but the experimentation herein involved has steadily passed from the typical problems of pure experimental psychology to those having to do directly with teaching and learning. A new type of psychologist, viz., one trained to detect and solve problems growing directly out of the teaching field, has arisen.

Many types of courses appear in teacher-training programs, and even in departments of pure psychology outside the teacher-training institution proper, which reflect the interest of psychology applied directly to educational problems. Among these may be mentioned such courses as mental tests, aptitude tests, psychology of personality, psychology of character, educational measurements, psychology of elementary-school subjects, psychology of the high-school subjects, psychology of elementary and secondary education, psychology of the pre-school, kindergarten-primary and high-school pupil,

psychology of learning, special methodology of learning and teaching the school subjects, foundations of method, et cetera. In other words, the amount of psychology spread throughout the entire teacher-training curriculum is of great magnitude, so much so that it quite clearly exceeds in quantity the presentations of history and philosophy of education, school administration, child accounting, and other co-ordinate divisions of the educational field. The intrinsic worth of this mass of psychological data and its techniques, and its specific contribution to the training of teachers and school administrators, warrant serious consideration (142¹).

PSYCHOLOGY AND EDUCATION

Even a casual consideration of the contribution of psychology to education in general, and to the program of teacher training in particular, reveals the possibility and necessity of an extensive study. Chief among major topics of interest may be enumerated the following:

a) Contributions of systematic psychologies to education. This would involve a consideration of the degree to which the major psychological systems furnish a foundation upon which education, i.e., applied psychology, may properly be built. Invited into court undoubtedly would be structuralism, functionalism, behaviorism, and physiological, hormic, and Gestalt psychology.

b) Critical evaluation of psychological contributions to education to date. This would involve an intensive research into such major fields as the following, with an endeavor to ascertain definitely the share played by psychology in bringing the indicated fields to their present status: Organization of schools, teaching methods, tests and measurements, curriculum construction, educational administration, guidance and vocational education, and the general determination of educational objectives.

c) Psychological background of current leaders in education. This would involve a case study to determine the share psychology has had in the training of current educational leaders, and an attempt to compare this contribution with that made by other lines of discipline which have entered into the development of the leader. Such a study

¹ Refers to item No. 142 in the Bibliography in chapter xi.

might help to explain the oft-noted aversions of certain educational leaders, functioning as mental sets against such fields as mental tests, philosophy of education, educational tests, or special method.

d) Probable contribution of psychology to education in the future. If a science eventuates in prediction and control, psychology and education working together might attempt to block out the needed contributions which psychology should make to education, and have future practice guided accordingly.

The Committee interested in the development of the present yearbook early reached the conclusion that the fourfold study above outlined, though judged valuable and necessary for the proper development of the science of education, could not be carried out in less than a two-year period. It also saw the necessity of providing for a number of detailed researches, especially in item *(b)* above. With considerable reluctance, therefore, the Committee turned from the broad scope of the topic to the narrower one of the present yearbook. It leaves to subsequent interests of the National Society of College Teachers of Education the minimal two-year program which it considers so essential for a larger study.

PRESENT YEARBOOK

In considering the contributions of educational psychology to teacher training, the Yearbook Committee lays down certain fundamental assumptions: *(a)* candidates must be selected for admission to the teacher-training programs; *(b)* psychology, whether general or educational, cultural or functional, has a rightful, yet in a degree to be determined, place in the training of teachers; *(c)* progress of student development must be measured and certification for teaching made to result; *(d)* highly trained teachers, expert in a knowledge of the subject matter and in teaching method, are essential.

The general sequence of topics in the yearbook relates somewhat roughly to *(a)* the student in the teacher-training course, and *(b)* considerations touching the teacher-training curriculum. The treatment as developed is seen to be fairly well unified. It starts with the contributions which educational psychology is making to the selection of students for entrance into institutions of higher education, the place of educational psychology in the teacher-training curricu-

lum itself, methodology of teaching the science, the final grading of students and their certification, something about the caliber and equipment of teachers of educational psychology, and, finally, an extensive bibliographical study provided to guide subsequent reading in the several fields. An inspection of the Table of Contents, and the reading of the chapters, will show that the thinking of the Committee attempts to cover the contributions educational psychology is making, or can make, throughout the entire teachers-college course.

The general purpose of the yearbook is to press directly toward major issues. The members of the Committee have not allowed themselves to be restricted to mere summaries, miscellaneous and minor issues, or experimental studies. It considers that there is plenty to debate regarding the organization of courses in the teachers college, the contacts which should be established, the relationship of educational psychology to the other subjects, the function of educational psychology as the representative of scientific check and approval, and the quality of teaching being done. This general viewpoint explains why the yearbook includes a minimum of miscellaneous research reports.

A further consideration guided the work of the Committee, viz., the important survey now being conducted by Professor E. S. Evenden and his committee making the National Survey of the Education of Teachers. These plans involve a detailed analysis of courses offered, as shown by the catalogues of teacher-training institutions; a questionnaire to teachers regarding the most frequently offered courses in the major fields of their work, same to discover present methods and points of view of teachers; et cetera. In sensing the decided possibilities of overlapping, the present Committee has carefully avoided the analysis of curricula of normal schools and teachers colleges, liberal-arts colleges and universities; it seeks to discuss major issues, not details.

In selecting members for the Yearbook Committee, the chairman sought to secure university instructors in the field of educational psychology. Certain members have been trained primarily in pure psychology and only in recent years have come into the educational field. Others have passed their entire professional career under teach-

ers-college influence. The membership of the Committee, listed in the order of appearance of their papers in the yearbook, is as follows: Herbert A. Toops, Ohio State University; Arthur I. Gates, Teachers College, Columbia University; L. W. Webb, Northwestern University; Fowler D. Brooks, DePauw University; F. B. Knight, University of Iowa; W. Clark Trow, University of Michigan; Mark A. May, Yale University; G. M. Ruch, University of California; Joseph Peterson, George Peabody College for Teachers; Carter V. Good, University of Cincinnati.

Each member of the Committee assumes independent responsibility for his contribution to the yearbook. No attempt has been made to reconcile possible conflicting viewpoints of the writers, nor to secure a degree of unity except by the preliminary designation of the general program of treatment the yearbook was expected to follow. In general, each chapter is summarized by its writer. No attempt at a general summary or evaluation is made in this publication. The critical evaluation of the yearbook will be made by specially appointed leaders who have accepted a place upon the program of the Society for this purpose. This meeting, at which the yearbook will be formally presented, is scheduled for Tuesday afternoon, February 23, 1932, at 2:15 P.M., Washington, D.C.

L. A. PECHSTEIN, *Chairman,*
University of Cincinnati

CHAPTER II

SELECTION OF ENTRANTS TO TEACHER- TRAINING COURSES

Herbert A. Toops, Ohio State University

The distinction between the "selection" and the "guidance" of persons is a clean-cut one. Selection is an employment-office procedure in which the paramount consideration is securing efficiency of production in the work to be done by those selected. Guidance, in its best conception, is simply education, as education is best conceived; and its central concern is the best all-round development of the individual's potentialities—if we talk in generalities which mean little until concretely defined.

In spite of the obviousness of the distinction, almost anyone who discusses the problem will be found, on close analysis, to be arguing first on one side of the problem and then on the other, without ever resorting to the courtesy of warning his audience as to the several points of transition. The author of this chapter would vote most heartily for any lawmaker who would propose to add to our already overburdened statute books the following: "Any public speaker, speaking on the topics of selection or guidance of prospective teachers, shall be guilty of a misdemeanor in case he shall not burn over his head a yellow light for the precise length of time he is talking on the former topic and a red light for the precise length of time he is talking about the latter"!

When, in the development of the political philosophy of a state, it becomes apparent that education of the individual must become a matter of public concern, the state at once implicitly assumes, in the execution of the laws enabling and supporting public education, the rôle of supervisor of employment. Like all private employers, its main concern, so long as it wears its garb of supervisor of the public employment of teachers, is that of any private employer, to wit: To obtain the best possible talent for the several positions available at the lowest possible wage. This, too, is but a meaningless defi-

nition until we define it to mean such concrete concepts as the following:

1. Each position (perhaps each title, but more probably each job) of the public schools demands particular skills, knowledges, attitudes, and character traits.

2. For each possible title, either potentially or actually, there will be many competing applicants.

3. These applicants will vary in wage worth from "very inefficient" ability, on the one hand, to "very efficient," on the other.

4. The supply being greater than the demand, selection among applicants becomes desirable, necessary, practicable, and withal inevitable.

5. It follows that the state in time will come to demand special training for its would-be teachers, will impose minimal graduation standards, minimal scholarship standards (scholarship quotients), for promotional status in the training institutions; and, the supply of applicants still greatly exceeding the possible absorption of graduates, will impose minimum entrance standards.

In America we are at this stage of the problem. It must not be thought, however, that our genial mother-state has only a weekday set of clothes. In response to the importunities of a small but growing minority she more and more frequently dons her Sunday clothes and considers such, as yet, highly philosophical topics as:

1. Are not the limitations of ability of teachers due to limitations of environment rather than of native capacity (4, 20); and will not, therefore, the *proper kind* of teacher-training remedy these deficiencies?

2. Is it not essential, in order to be consistent with the principles of democracy, that everyone who so desires be given at least a try-out at success by being allowed to enrol in a teacher-training institution? (It will be noted, in this connection, that few carry the argument so far, as is entirely logical with the viewpoint, as to suggest that democracy likewise demands that those who fail to receive a teacher-training diploma nevertheless should be given a tryout at teaching on the grounds that they are not personally responsible for their defective college training! Psychologists can explain that readily. The objectors are, in the main, college teachers.)

3. Inasmuch as the experimental evidence as to the possibility of predicting teaching success is, at least at first glance, not very promising—is not the attempt to prognosticate at best but a waste of time that better might be employed in attempting to improve the courses and curricula which we will all admit are rather defective?

In such arguments we note the garb of guidance, a zealous concern of mother-state for the welfare of the child who is in the focus of attention at the moment.

But each teacher is primarily a giver rather than receiver—as any teacher will be glad to testify. The need of the taught transcends the need of him teaching. To teach is a privilege to be bestowed by the state only upon the competent. And we do have some measures by means of which to distinguish the competent from the incompetent. The state owes to everyone, perhaps, a higher education; but it certainly owes to no one an education as teacher, or a training in any other profession of so much social concern as that of teacher. Much less does it owe such an education *with a certificate* which, according to our thus far evolved system, places all holders on an *equally acceptable* basis, so far as the state's concern for the qualifications of applicants for job preferment are concerned.

The limitations of space preclude the further development of the arguments. Suffice it to say that selection is the system that must continue until a more rational guidance of individuals and a more rational planning (28) of education to meet national occupational demands for graduates is placed into operation. But few of the teacher-training institutions in Ohio in June, 1931, report placement of as many as half of their graduates, a situation which has rapidly grown worse over the past few years in spite of a most aggressive policy on the part of the state department of education for the elimination of the weaker and less well-prepared teacher-training institutions. And, if the demands for teacher-training education on the part of high-school graduates are any reliable forecast of the future, the situation may not be expected rapidly to improve merely through eliminating the weaker teacher-training institutions.

It may therefore be concluded that a selection policy—for essentially employment purposes—is required, for wage-protection of the

teachers themselves even if social demands for better teachers for the moment be ignored. The question then simplifies to that of, "What hurdle or hurdles shall the prospective applicants be compelled to jump?" To save discussion, let us enunciate the answers as a set of theses or propositions, the truth of which the author believes in most cases will be upheld by the research literature, and the desirability of which will be confirmed by the literature of the philosophy of guidance.

1. The employer of an entrance hurdle must recognize that the would-be teacher is a growing expanding individual who, in some cases at least, overcomes in college to some extent his personal weaknesses existing at graduation from high school; albeit, wholesale reformations do not now often occur under our present educational system.

2. The entrance hurdle, to be of any use at all, should be more valid in separating the to-be-failures from the to-be-successes than personal judgment, the alternative which it is called upon to replace; and to be practically useful it must be rather considerably better.

3. It follows that the entrance hurdle should not be one test or test variable but rather a composite of all those factors which in the aggregate are "causes" of success, since such a composite will be more valid than even the best single variable alone, and accordingly a minimum standard on such a composite as compared with a single test will better secure the ends of: (a) better teachers for the schools; (b) better "guidance" of individual would-be teachers.

4. Because of the known unreliability of tests and test variables, it follows that the *successive hurdles method* of eliminating possible would-be applicants, which attaches undue importance to the legalistic requirement of completion of the several conventional steps in the prescribed path to becoming a teacher, is not necessarily best from the viewpoint either of selection or of guidance, although effective in quickly reducing the number of possible applicants to sizable numbers. To admit this principle is at once to admit the possibility that many who do not or cannot complete the grades would succeed in high school, that many grade-school graduates might succeed in college without a high-school education; and that many grade-school and high-school graduates might succeed as

teachers without ever attending a teacher-training institution, or without having had even the most rigidly prescribed of the present professional requirements. It is the overlooking of such self-evident propositions as these that leads the research worker to desire a law for the illumination of those platform speakers who speak on selection and guidance! Education dimly recognizes unreliability of scores in making such provisions as allowing probationary status instead of elimination, and in the employment of guidance counselors and deans to prevent failure where possible, and to mitigate its stings when cure is the only available alternative to prevention of failure and elimination. Yet few teachers know that the most likely mark of an "E" student upon repetition of the course (without additional work) is a D mark; and the most likely mark of an "A" student upon similar repetition of the course is a B mark; and, strangely enough, also, that the student in general who has taken two courses and made A in each is a better student, on the average, than the student who has taken only one course and made A in it. The former has run the race (risk of not making A) twice and has not been ditched by the wayside, while the latter is as yet "an unproved contender" for the title. All this argues for delaying, as long as possible, the perfectly arbitrary labels of failure: "did not get a grade-school diploma"; "failed Algebra, failed Latin"; "did not get a high-school diploma"; "did not pass the 1.8 rule in college"; "failed the bar examination"; etc., etc. However, a due consideration for this factor of statistical unreliability of hurdles, as measures of competence or promise, argues for time *only to the end that education and guidance may have a chance to try to rehabilitate the otherwise failure*, if not to be a success at Latin, then to be a success, if possible, at manual training or art; if not to be a success as a teacher, then, if possible, to be a successful manicurist or veterinarian.

5. It is unlikely that "the chain is no stronger than its weakest link" is a true statement of the organization of human personality, thereby justifying the present widespread employment of the successive hurdles method of elimination of possible aspirants to the professions and other more socially desired occupations of mankind. Human beings strive to compensate for their weakest links, some few individuals carrying the process to such a degree of overcompens-

sation that the world accords the crown of genius to the otherwise weakling.

6. Any hurdle or hurdles before widespread adoption must have been statistically proved to be better than the hurdle or hurdles which it replaces.

7. The best selection is synonymous with that selection which naturally results from the functioning of the best guidance. It is believed that teacher selection (under the rôle of guidance) should certainly begin early in the high school if not earlier. Some of the advantages of such guidance are claimed to be (185; 209, chap. i):

a) Students high in test-measured ability may be apprised early of their ability and be encouraged to excel, and may be allowed to specialize.

b) Students desirous of going to college may, all the sooner, plan their prerequisite high-school courses with college as an end in view.

c) Conferences may be arranged with parents of bright, scholarly pupils in an effort to devise plans and means whereby the finances of a college education for their children may be saved or otherwise provided for.

d) High-school studies of occupations (including occupational researches by pupils) will insure better knowledge of pupils regarding occupational demands and opportunities.

e) All considered, since only half of the 60 per cent of high-school seniors *above* the minimum college level in intelligence and preparation now go to college, with such guidance functioning, the places of some of the present failing students in college will be taken by these more capable, but oftentimes financially poor, students, with profit to all concerned in the exchange. With the advent of a better grade of college student—each going to college of his own volition—better teachers, graduates, will ultimately result, on the average, in several indirect ways: (1) The level of attainment in college will be raised—college-trained teachers will know more, when the “target” of the college class is not set at sub-average ability. (2) With the unintelligent eliminated from teacher-training institutions, recitations may all the more quickly be abandoned in favor of individual creative work. (3) College teachers’ time, now largely devoted to the routine duties imposed by the learning troubles of the sub-average, may be

freed from such relatively unproductive labor and henceforth be devoted to improvements in methods—to render null and void the declaration that “the worst teaching in all the colleges is done in the teacher-training courses.” (4) The recruits for the vocation of teacher-training teacher will be more capable, academically, to start.

f) Enlightened self-interest—the product of adequate vocational information (perhaps amplified by tryout opportunities in teaching in the high school) and self-enlightenment as the result of tests and cumulative records of the pupil, aided by norms from teacher-training institutions as to the college mortality, the average study time required, the safe amount of extracurricular activities, of outside work, and of athletics of persons of one of the guidee’s ability—will in time lead to such wise choices of teaching as a career that arbitrary college exclusion policies will become obsolete and unnecessary.

Having decided that a guidance-selection policy is better than a college exclusion policy, there remains to be considered mainly what dogmatically may be said of occupational enlightenment and self-enlightenment with a few comments, regarding the rôle of college institutions in producing undeserved failure and undeserved success of college students, thrown in for good measure.

OCCUPATIONAL ENLIGHTENMENT

1. Every state annually should have a personnel survey by Hollerith Card methods of its teachers, (a) to note status and (b) to note progress in respect to: (1) upbuilding the teaching profession (“raising the standards”); (2) salary formulas in effect (relationship of salary to the factors upon which it is dependent—intelligence, training, and experience); (3) inadequacies of placement (teachers trained in one field required to teach in another field in which they are quite unprepared); (4) turnover rates of teachers, both generally and in specific subject matters; (5) probable demand for teachers by subjects, such predictions being made at least four years ahead; (6) additional information, which, like the foregoing, will be of utmost value in pupil enlightenment in regard to the opportunities and shortcomings of teaching.

2. Supervised tryouts should be given early to all aspirants to the profession.

3. Vocational opportunities in new occupations and to-be-created occupations should be discovered by pupils as a result of their own search, study, and discussion. ("America expects to make its living by farming, teaching, and running a restaurant! Oh, that it had an imagination!")

SELF-ENLIGHTENMENT

1. Tests and test variables should be collected for the self-enlightenment of the pupil, not for their exclusion primarily as in the past.

2. The composite score on a number of tests and test variables should replace, as far as possible, the successive hurdles method of selection; and for guidance the results should be expressed preferably in terms of (a) probability (97) or (b) of concrete suggestions for pupil remediation, such as "number of hours per week one of my intelligence should study in college" (185, p. 9). These two precautions alone would quell much of the present opposition to intelligence tests used as selection hurdles.

3. The tests and test variables must be validated on an experimental group before widespread adoption. The tests used at the present time do keep out the weaker ones of the to-be-college failures. Since, with present policies, college success is a *sine qua non* of entrance to teaching, such a selection hurdle operates mainly to reduce the burdens of college teachers by preventing them from being deluged with "unintelligent" students. The present tests, for the most part, are not aimed at predicting teaching success; and have not been put through the prescribed regimen of a true specific guidance test:

a) Construction of objective standardized test material prepared in great abundance so that: (1) poor material (items) can be discarded; (2) poor subtests can be discarded; (3) a number of equally difficult, equally valid, and equally reliable alternative forms may be constructed from the materials passing the foregoing scrutiny.

b) Tryout on a group *in advance* of their entering upon the occupation.

c) Determination of true success scores (criterion scores) in teaching of those entering the occupation.

d) Application of appropriate statistical techniques to determine the identity and construction of the resulting test.

4. Most tests and test variables to date correlate poorly with teaching success.

The primary cause for this, in the author's opinion, is that adequate criterion scores or measures of success of teachers on the job have seldom been made. Without adequate measures of job success the test maker is only attempting to predict "errors of ratings." Supervisors' ratings of teaching efficiency will not do. Much of the rating-scale movement as applied to teacher rating is wasted effort, at the very least.

The ratings must be valid. To be valid, one must measure what changes take place in the nervous systems of children.¹ Perhaps one should observe the pupils being taught and not the teacher attempting to teach. Bowman (16) has shown that this is eminently practicable.

5. Teaching success is not one thing, but many. Accordingly, we must either (a) attempt to predict each aspect of teaching success as a separate problem: (1) the probable wages of the teacher, (2) the probable promotions in salary, (3) the probable promotions in responsibility (titles), (4) the probable length of service of the teacher, (5) the teaching effectiveness of the teacher, (6) the speed with which the teacher acquires a mastery of specialized techniques, taught only on and by the job, (7) the community effectiveness (service) of the teacher, etc.; or, (b) attempt to measure each of the foregoing, but to combine them into one single, simple (arbitrary and artificial) index of efficiency of the teacher (186; 187, pp. 128-36). No research known to the author is statistically and practically adequate in this respect. Teacher success has never been measured. Judgments with their halo ratings must not be used uncritically. The foregoing abilities, and others, must be objectively measured.

¹ Theoretically, there is probably a high relationship between *what* teachers do and *how effectively* they do it, i.e., between numbers of things done (or left undone) and what takes place in the lives of children. To date, so far as known to the author, no one has attempted to exploit the possibilities of this method made readily possible by the Commonwealth Teacher Training Study (27, pp. 257-63). Not one of the least promising possible outcomes of such a study would be an analysis of supervisors' judgments—a conglomerate having as much to do with teachers' duties, activities and attitudes *outside* the classroom as *in* the classroom—into their components in order that we might have a look at them.

6. In the light of the foregoing requirements we may evaluate some of the teacher hurdles hitherto used:

a) *Intelligence tests*.—Intelligence tests are the favorite hurdle. They are objective, relatively impartial, and, if long enough (as unfortunately most are not), are reliable. They do predict teacher-training academic success well. They do not correlate well (in the literature to date) with success on the job. But as above pointed out, this is possibly a fault of the success indices employed. At worst, limitations of enrolment brought about through their means raise the intellectual minimum standard of the occupation, certainly not to be undesired, as anyone will admit when confronted with the *ad hominem* argument, "Would you want an unintelligent teacher to teach your child?" As in industry, school officials may be found, no doubt, who privately, if not publicly, will admit that teachers in the subordinate positions may be, from their point of view, too intelligent for their jobs.

b) *High-school graduation*.—High-school graduation, although universally employed as one of a succession of hurdles, is almost meaningless. The 30,000 high-school seniors of Ohio varied in score from 12 points to 266, with practically all intermediate scores represented, on a $1\frac{1}{2}$ -hour objective intelligence test. Their scholastic ability, if equally adequately measured, would be distributed quite as widely.

c) *Averaged high-school success*.—If the differences in grading systems of different schools be allowed for, the value of this variable is about on a par with the best intelligence tests, or even a trifle better. By a state-wide organization of the reduction of averaged high-school marks to a comparable basis by Hollerith procedure, this extremely valuable variable might be readily salvaged by a not unreasonable amount of work on the part of a central research bureau.

d) *High-school prerequisites*.—High-school conditions (adjudged penalties for failure to attain prerequisites in "essential" high-school courses) are of little value when so nearly all applicants do meet the requirements imposed—that being a step in the approved system of progress to occupational preferment. There is probably no single course, save perhaps reading and arithmetic of the elementary

school, which is so essential that high intellect cannot readily compensate for its absence at the college level.

e) *Principals' rankings.*—Principals' rankings and also principals' judgments as to the third, quarter, etc., of the graduating class in which the graduating senior falls, are inferior and "unfair" methods of selection. The evidence seems to indicate not only that these are much less valuable than either actually averaged marks or intelligence tests, but also that they tend to put the burden of deciding on college admittance or exclusion, not upon the college where, under the present system, it belongs, nor upon the pupil where guidance philosophy argues that it should belong, but instead upon the principal who does not want, or ought not to want, the responsibility.

f) *Success in college subject matter.*—College grades, like all the remainder in the studies so far, seem to correlate but indifferently with success on the job. And "yet, subject matter is most essential" say all the arts-college representatives who believe that the professional courses of the training schools are unessential. The one says that subject matter is relatively unimportant (or "can be readily acquired") while the other says that "methods are unimportant" (or "can be readily acquired"). The scientist might prudently ask, "What methods and what subject matter, kind sirs, are you discussing?" whereupon, it is a fair guess that the disputants will find themselves in less disagreement than formerly, if not in complete agreement. Subject matter is highly important, perhaps, "when we try to learn 'em," and it is a fair guess that methods are highly important "when we try to teach them how to teach themselves."

g) *Success in practice teaching in training schools.*—The literature seems to show that this variable does not correlate well with later success on the "real" job. But, perhaps that is to be expected in view of the even poorer measures of practice-teaching success—which it is logical to believe must prevail—than the very poor available measures of teaching success on the job. Were we to iron out the unreliability of ratings of the two, the value of this hurdle would mount. But suppose that at the present moment we had this improvement. Practice teaching, done in the fourth year of preparation for a job, which costs the trainee \$600 per year, is rather late in the day to be employed to eliminate the failures. Is it not fair to ask the

question, "Why not have practice teaching in the freshman year—enough of it (reliably measured) to forecast the student's probable success, and to enable him to taste the emotional side of teaching in order to come to some conclusions as to whether or not he *likes* or *dislikes* teaching?" Perhaps this should occur in the high school. The Lancastrian system had much of merit—for the pupil teaches! Furthermore, mastery of the teacher's job is the main essential for success as foreman in industry, or as a minister, diplomat, or orator, and, as unfortunately but few appreciate, also as an engineer.

ELIMINATING THE CAUSES OF UNDESERVED FAILURE AND UNDESERVED SUCCESS IN COLLEGE

All things considered, "intelligence" tests are one of the best and fairest of the present available methods of selection. It is only inevitable that there should be considerable opposition to them. The motivation of the criticism resides largely, no doubt, in the imputed moral opprobrium attached to a low "intelligence" score, a connotation by no means removed by calling them "psychological tests," "Test CAVD," or "Test 59."

It is only human that critics should seize upon individual cases showing a discrepancy of "attainment" with "capacity" and attempt to make the most of them. Inasmuch as the cases of "high" scholarship with low intelligence and of "low" scholarship with high intelligence do constitute the cases which destroy the validity of the test, they are properly a matter of much concern to the test-maker. However, "one swallow does not make a summer." And no entrance hurdle is possible of construction such that all persons below a given minimum entrance standard will fail and all above will succeed (unless we set the standard so low that all applicants for the next thirty years will pass!). This statement applies equally to all the conventional hurdles mentioned—intelligence tests, averaged marks, rankings, possession or non-possession of a diploma, possession or non-possession of the approved prerequisites, college general marks, and practice-teaching marks.

Aside from the fact that success is a relative concept, that the failure-point (minimal passing score) must be arbitrary, and that distributions of fitness scores are continuous and not bimodal and

discontinuous, there are several influences which make for discrepancies in individual cases which, if properly allowed for, would not occur.

If we define the difficulty of a college course as the average grade (point-hour-ratio units) attained on the average by a student of average intelligence taking the course (determined from the regression equation of scholarship predicted from intelligence), we find that within a university, the difficulty of courses varies from D to B (198), which is to say, that even a very bright student, taking a course of the former difficulty, on the average will do poorly, while a very unintelligent student happening to take the latter will do very well indeed.

Again, among the several sections of even the same course—say freshman history or English—there will be found instructors who require two and a half times as many study hours per week of their students as others; and not only that, but mark much more severely their students, who, because of the repute of the instructor among the students, are very likely to consist of a self-selected group of unusually bright students. All of this may be summarized by saying that for courses of equal grading difficulty, as above measured, the study requirements vary enormously from instructor to instructor.

As for study time, 100-centile-rank students on the average study about 20 hours per week while the 1-centile-rank students report 50 hours per week. Thus, there is a very evident compensation for low ability; and, correspondingly, a very decided lowering of the attainment of the class to the level of work which the relatively unintelligent student can do. To say that low-scoring students sometimes succeed in college is like saying that a tortoise sometimes outstrips a hare in a race. And, upon closer inspection, the college success attained by such low-scoring students will usually be found to be only slightly above the scholarship minimum quotient required for graduation. If this scholarship minimum were raised by even so much as half a letter grade, we should eliminate fully nine-tenths of the small number of now excluded persons who "could graduate if allowed to enter." Again, it is clear that a determined tortoise might walk from New York to Boston; but certainly that argues nothing with respect

to whether we should hire the tortoise or the hare to run a race for us from New York to San Francisco.

From such angles it will be apparent that the colleges have many preventable causes of undeserved failure and undeserved success, which, if taken into account, would make the at present most generally accepted hurdle even more valid than it now is. Viewed from such angles, it becomes clear that "the good of all children is paramount to the good of any would-be teacher" is a greater truism than we should have expected at the outset.

HIRING AS A SELECTIVE AGENCY

If it could be granted that the best graduates would practically invariably be hired, then the end of obtaining a high standard in the employed teaching body could be secured by graduating far more students than the profession could absorb. Unfortunately, the assumption is a dangerous one. Hiring officers must be educated to know what they ought to want. One effective method is to issue to prospective employers mimeographed lists of the traits of individual graduates (identified by code numbers) so that, by running his eye over the columns, the intended employer may compare traits and so see in a rough way what he is able to get for his money. Such fairly comparable traits include sex, race, intelligence, age, marital condition, general academic scholarship average, names of majors and minors, scholarship in major, practice-teaching mark, extra-curricular activities—in fact, all of those things customarily taken into account by the training-school placement officer in referring an applicant for an interview.

Obviously, a teacher-training institution may take the view that it is not responsible for placing its graduates. Few institutions, however, refund the tuition fees if the graduate fails to obtain a position. And, it does seem a little unfair, if, after spending \$2,400 for a teaching certificate, any student should find it to have no value! At that stage in his career, the disappointed student could sincerely wish that the college had been a little more ruthless in applying an entrance standard of some severity. All those allowed to progress to graduation should be of a caliber such as to be capable of obtaining

positions at or above a minimum wage, the exact wage of each perhaps being left to a determination by competitive bidding of schools for specific talents.

A SUGGESTED IDEAL PROGRAM

If, then, we would summarize the high points of a desirable selection program, perhaps it would look something like this:

1. Annual tests, from the freshman year on, in the high school—intelligence, subject matter, specifically vocational tests—with cumulative records of all kept over four years.

2. At least one annual conference with every pupil on vocation and life aims and adjustment.

3. An annual or biennial survey by Hollerith methods of all the teachers of the state—elementary, high-school, college, university—in order to arrive at needed factual information on teaching.

4. Indices of progress of the upbuilding movements in the teaching body of each state compiled from the foregoing reports.

5. A tryout at teaching in high school of every pupil above average in intelligence.

6. The decision as to whether to enter or not to enter a teacher-training institution increasingly to be made by the pupil himself in the light of all the facts, rather than arbitrarily to be decided by any college entrance board or committee.

7. A tryout at practice teaching under standardized conditions of each student early in the teacher-training course.

8. Elimination of the avoidable causes of undeserved college failure and college success.

9. A consistent policy of upbuilding the teaching efficiency of teacher-training teachers.

10. Competitive bidding for *traits* on the part of school hiring officers, an effective method of letting students know that methods *and* subject matter *and* social ability *and* executive ability *are* important for success.

CHAPTER III

THE PLACE OF EDUCATIONAL PSYCHOLOGY IN THE CURRICULUM FOR THE EDUCATION OF TEACHERS

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During the past decade important changes have taken place in the range, if not in the type, of courses offered in institutions devoted to the education of teachers. The same period has brought forth active criticisms of the basal type of curricular organization in these colleges and a number of proposals for reform. Considerations looking toward the improvement in instruction in educational psychology should be treated in relation to the changing character and theory of the teachers-college curriculum as a whole.

TRENDS IN THE TEACHING OF EDUCATIONAL PSYCHOLOGY

General changes in teacher-training institutions.—The first significant change is the rapid enlargement of the length of the curriculum for the education of teachers. The older types of two-year normal schools are increasing their offerings to include three- and four-year courses. These changes usually embrace the addition, not only of more professional training, but also of cultural or background courses of the type familiar in the liberal-arts college. In keeping with the change in character, a change in title from "normal school" to "teachers college" is usually made. At the same time, liberal-arts colleges have, in considerable number, added to or substituted for their traditional offering, a sufficient number of courses in education to satisfy the requirements for a teacher's certificate in many localities. In these two ways, the program for education of teachers is increased in length. With the trend still strong in this direction, plans for the future should give first concern to the teaching of psychology on a collegiate level for a three- or four-year period.

Changes in program of courses in educational psychology.—As schools for the education of teachers have increased the length and

scope of the curricula, the program in educational psychology has been extended and enlarged. Comprehensive studies by Freeman (49), Jarrett (81), MacDonald (111), Robinson (160), and others have shown that the most conspicuous change has been the addition of courses in specialized phases of educational psychology in which the greatest growth in facts and principles have occurred, with relatively little—often no—addition to the time devoted to the general or survey course. Thus, Robinson (160) found, in 1927, that the average number of courses in psychology in representative teacher-training institutions of three- and four-year programs was 5.42; MacDonald (111), in a somewhat different selection of institutions, found the average to be 5.7. The typical four-year program of collegiate level contains six or seven courses, the relative frequencies of which, as found in Robinson's study of 597 courses offered by 110 institutions, are as follows:

General educational psychology	140
Measurements	106
General psychology (usually preceding educa- tional)	95
Psychology of childhood	78
Psychology of adolescence	49
Psychology of school subjects	38
Abnormal and clinical	19
Social psychology	16
Individual differences	6
Statistics	5
Miscellaneous other courses	45
Total	597

The changes, in short, consist largely in the addition of whole courses to enlarge the treatment of certain topics formerly treated more briefly in the general courses. Since no period in the past has equaled the present in the rapidity of development of educational psychology in its special aspects, it should be expected that the continuation of the prevailing policy would lead to further increases in the number of courses, especially an increase in the frequency of such courses as "Mental Development," "Psychology of the School

Subjects," notably in the junior and senior high school fields, "Educational Diagnoses and Remedial Instruction," "Clinical and Abnormal Psychology," "Social Psychology," "Psychology of Character and Personality," "Psychology of Curriculum Construction," and so on.

APPRAISALS OF THE TEACHING OF EDUCATIONAL PSYCHOLOGY

Sources of criticisms.—For more than a decade, however, attacks upon the policy of modifying the program of psychology, by mere addition of specialized courses, have been made at intervals. It is a credit to psychology that the most frequent and sharpest of these criticisms have come from the psychologists themselves or from students working under their guidance; for example, Freeman (49), Knight and Remmers (158), Douglas (36), Pechstein (142), Worcester (202), Watson (196), Haggerty (66), Hertzberg (72), Hilliard (73), and Peik (143). If criticisms of psychology seem to be more "in the air" than attacks upon other subjects, it is not improbable that it is due to the fact that the psychologists have been most active in broadcasting appraisals of their own work.

Types of criticisms.—In the several studies, examples of which were listed, the main criticisms have been as follows:

1. Courses in psychology are, or have been, too academic in content. It has been repeatedly urged that the instructor is disposed to repeat, in the teachers college, the systematic course offered in the college and university for the general student. This policy results in including much material which, however interesting and valuable to the professional psychologist, to the general student or to students in other professional lines, has little or no direct value in education. Material on the nervous system, problems of mind-body relationships, sensation, illusions, advanced statistics, theories of mental processes, and applications to law, medicine, advertising, etc., are samples of topics criticized.

2. Courses in psychology are often too academic in presentation. It is frequently urged that psychological facts are often illustrated in terms of laboratory, experimental, and popular settings rather than in terms of school situations and problems, and that the systematic textbook or lecture procedure, or even the laboratory method of

instruction, tends to resist the functional application of principles to professional tasks.

3. Instructors in psychology too frequently isolate their work from the "practical" courses in practice teaching, observation, and supervision and from the practical-method courses such as the teaching of reading, and the like.

4. Courses in psychology are not organized sequentially in the program to avoid outright repetition and to provide effective extension, review, and integration. New courses, it is urged, are merely added without adequate reorganization of the whole program to produce the most fruitful total pattern.

Sources of the defects in teaching educational psychology.—Since these criticisms come from competent observers within the ranks of psychology itself, it is advisable frankly to admit that they are valid (although applicable in varying degrees to different institutions) and to proceed to determine the causes and remedies.

The difficulties are probably due in part to the decidedly academic point of view which many instructors have received in their training in general departments of psychology, in part to sheer lack of information regarding what comprises the ideal equipment of the teacher and the nature and significance of her tasks, in part to the general pattern of organization, and in part to the heavy teaching burden imposed upon instructors in psychology.

The teaching load in educational psychology.—To take the last item first, little more need be offered than the fact found by McMullen (1115) that *teachers in psychology carry the heaviest teaching load of any group in teacher-training institutions, not excepting any*. McMullen's teaching-load hours (determined by the formula $3.13 \times \text{hours per week in class}$) is 50.08 for psychology, as compared with 44.1 for manual arts, the next highest, or 41.3 hours for educational theory. This load represents about 16 hours per week in the classroom. When consideration is given to the wide range of applications of psychology and the enormous annual literature one must cover to keep up with the subject, some justification may be found for the belief that the first and most important thing to do to improve instruction in psychology is to reduce the teaching load.

BASES OF SELECTING CONTENT FOR COURSES IN
EDUCATIONAL PSYCHOLOGY

The criteria.—Studies designed to yield an appraisal of the content of courses in psychology have been hampered by lack of a full consideration of, or agreement upon, the criteria to use in selection. From the literature, one may find some justification of each of the following criteria of values:

1. Practical value: Value as applicable to the regular classroom work of the typical teacher.
2. Theoretical value: Value as basis of stimulating thinking concerning the objectives, methods, and means of education in modern society.
3. Cultural value: Value as basis for assisting teachers to become liberal, balanced, and intelligent members of modern society.
4. Propaedeutic value: Value as a necessary preparation for, rather than intrinsic in, a fact or principle justified by one or more of the preceded values.

Among the published criticisms of psychology, there is, the writer believes, a general agreement, by implication at least, that the last two criteria are alone the defense of too large a portion of the material offered in the typical program for the education of teachers. There is also the feeling that these criteria are rather loosely applied, that more rigid appraisal would fail to sustain a defense for large amounts of material now offered. Thus, reports of many detailed laboratory and technical studies on the ground that they cultivate a necessary scientific point of view or are essential to the understanding of basal principles, and data concerning anatomy and physiology of the senses, theories of intelligence, learning, etc., are held to be, not only of relatively little cultural and of still less practical or theoretical value in the teacher's professional work, but unessential propaedeutics in the teaching of psychology itself. Freeman, Haggerty, Pechstein, Watson, and others have urged this point of view at different times during the past dozen years.

In the publications of several of these critics, it appears that the first criterion is considered to be the main guide, and that the theoretical and cultural values of psychology are less useful and perhaps less sound criteria. In the writer's view, they should be carefully appraised as possibly important criteria in developing a program of maximum fruitfulness.

That the education of teachers should be conducted in such a manner as to foster critical thinking, in training and thereafter, concerning not only possibilities of improving the professional services of educators but also of utilizing educational agencies as a means of liberalizing and enriching human life in all its aspects, is a thesis heartily defended by outstanding leaders of educational theory. That psychology may contribute richly to these purposes seems probable to leaders in this field, and that it does so contribute is the belief of the majority of a representative group of high-school teachers whose opinions were recorded in the midst of their professional activities several years after completing their academic work. In this study by Peik (143), psychology as taught in the University of Minnesota School of Education in 1923-24, not only was rated as contributing much, in an absolute sense, to the stimulation of later constructive thinking about educational problems, but also was judged to be of high theoretical value, relatively, in comparison with work in "Educational Sociology," "History of Education," "The High School," "Technique of High-School Instruction," "Special Methods for the High School" and "Practice Teaching." Indeed, as a means of fostering constructive "educational thinking directly or indirectly," psychology was given the highest rating—higher than that of courses dealing directly with the general problems of high-school education.

METHODS OF SELECTING CONTENT OF COURSES IN EDUCATIONAL PSYCHOLOGY

In several studies, efforts have been made to appraise the absolute or relative, or both, values of particular topics or concepts in psychology for the education of teachers by the pooling of opinions expressed by students, teachers of psychology, and teachers of various branches of education. In most of these studies, the respondents were given no instructions concerning what criteria to utilize other than the suggestion to consider "all-round" or "general" value; in certain cases, it is probable that the suggestions given to judge the value of the topics or items to the "teacher" or "classroom teacher" in reality emphasize the first criterion "practical value to the teacher." While these investigations (especially those of Free-

man, Watson, Haggerty, Hertzberg, and Hilliard) agree in suggesting that less time and space be devoted to several phases of academic psychology than were provided by typical texts published prior to 1927, and that more attention be given to such topics as personality adjustments, problems of general teaching methods, and the psychology of interest and motivation, they nevertheless disagree among themselves concerning many items. For example, Hertzberg's judges gave psychology of the special subjects, the development of skills, transfer of training, and the influence of physical and psychological factors a much higher rating than did Watson's group, whereas it gave original nature, measurements, individual, and group differences a much lower rating.

Such disagreements are probably due in considerable measure to differences in the choice and weighting of basal criteria, differences in points of view concerning educational aims and methods, differences in ideas concerning what comprise the teacher's main activities and problems, and differences in information concerning what psychology has at hand and how it may be applied. A more adequate selection of content for the program in educational psychology awaits a better agreement in all these respects. Active discussion is a prerequisite of a consensus of opinion concerning the weighting of the major criteria and the main objectives of education. Further "activity analyses" like those of Charters and Waples (27), further determinations of the teacher's difficulties and problems like those of Haggerty (64), and further appraisals of the values of specified treatments of psychology as judged by students after the test of professional experience, like those of Peik (143), as well as further studies of expert opinions like those of Watson (196) and Hertzberg (72), are essential to an adequate use of the criteria in selecting material in detail. Finally, it should be pointed out that even when an educational problem or situation is revealed, the possibilities of applying psychology to it are not thereby automatically made manifest. It requires both information and insight in high degree to make valid and useful applications of psychology to educational situations when the case is not already covered and reported in the literature.

Even if the results of such studies as those reported above do not provide all that is needed for immediate construction of a cur-

riculum, they will be of immense value and an indispensable source of guidance in the conduct of reflection and investigation. This, indeed, is a matter deserving great emphasis. The foregoing studies are needed to keep research from becoming scattered, trivial, barren of educational values, to direct it into the most productive channels and to bring it to bear upon significant problems. The teaching of educational psychology cannot depart far from, or greatly transcend, the products of its research upon genuine educational issues.

PROPOSALS CONCERNING THE PROGRAM OF PSYCHOLOGY IN THE CURRICULUM

Now that we have considered briefly the basal needs and procedures, we are in a position to deal with certain general proposals concerning the place of psychology in the curriculum for the education of teachers. From a considerable literature dealing with the curriculum, three proposals are selected for consideration as follows:

1. The conventional plan, suggested above, in which new systematic courses in specialized phases of psychology have appeared;
2. A reorganization proposed by Freeman in 1919;
3. A reorganization proposed more recently by Bagley, Evenden, and their colleagues.

Freeman's plan.—Since the conventional arrangement is well known and discussed above, we may pass it, to consider Freeman's proposal (49). It includes recommendations for deviations from conventional practice in two respects: (1) that materials be regrouped into several courses "to be designated by names which shall be descriptive of the content in these fields," and (2) that the general course, instead of being offered early, shall come late in the program and serve as a means of systematizing, enlarging, and refining the generalizations more or less well developed in the preceding work.

As an example, Freeman suggests, subject to revision in detail, the following order and types of courses:

1. Introduction to the Problems of Education
2. Methods and Observation
3. Management
4. Psychology of the School Subjects
5. Psychology of Learning

6. Child and Adolescent Psychology and Child Development
7. General Educational Psychology
8. Intelligence and Achievement Tests
9. Experimental Education

This organization in many respects reverses the order found in practice. It proceeds largely from concrete, professional experiences and problems (as in 2 and 3) and special applications of psychology to specific problems or situations (as in 4, 5, and 6), to general principles,¹ whereas the then current practice often proceeded from the general principles to the specific and detailed applications.

The Bagley-Evenden plan.—The third plan, suggested by Bagley (5) and Evenden (40, 41, 42), and sometimes known as the "Bagley Pattern," represents a more drastic change from practice.² The most significant feature of the plan is expressed as follows:

We propose a thoroughgoing integration of all courses, activities and experiences organized with the single purpose of preparing a competent teacher, with the understanding that what is called *culture* is a basic professional need of every teacher.

To this end, they propose a program composed of four types of courses:

1. *Professional integration courses*, such as "Educational Psychology," "Measurements," "School Management," the "Technique of Teaching," *et al.*, which present "the professional knowledge that applies in a technical way to practically all the subject-matter fields";
2. *Professional content courses*, which deal with the materials the student is preparing to teach and with problems involved in the selection of subject-matter for teaching and the adaptation of the content to individual needs;
3. *Professional laboratory courses*—observation, participation, student-teaching;
4. *Professional background courses*, "including all other material which the teacher needs as part of his professional equipment—again recognizing culture as a most important part of this equipment."

The program suggested begins with an initial view of the whole field, detailed study of parts, and considerable observation and par-

¹ So far as the courses in tests are concerned, they could, as Freeman suggests, be placed before the general course or incorporated in part in 4 and 5. They may be thought of as somewhat different from "General Educational Psychology."

² More detailed statements of the proposed curricula are contained in mimeographed pamphlets kindly furnished the writer by Professors Bagley and Evenden.

ticipation of school work. The general course in "Educational Psychology" becomes a "professional integration course," which in a four-year curriculum, is offered during the second half of the first year and the first half of the second year.

The revolutionary feature of this program is that *the course above outlined is the only course in psychology, as such, provided*. This course (to quote from a mimeographed discussion provided by Bagley) is assumed to cover not only established facts and principles regarding the laws of learning, individual differences and other factors commonly included under Educational Psychology, but also the psychology of the pre-adolescent period and the basis principles of mental and educational measurements. It is assumed that every professional-content course will be, in some respects, a course in psychology and that the measurements in the various subject-matter fields will be treated in the appropriate professional content courses.

Instead of five, six, or seven special courses in psychology, as at present in the four-year teachers college, the plan calls for a single, general survey early in the program. In the following years, psychology is presented wholly in connection with other courses—courses in teaching reading, and other subjects, and the work in observation, participating, and practice teaching. At the culmination of the program (in the last half of the fourth year) appear certain general courses such as educational theories (historically considered), an "outline of philosophy," and the "school curriculum."

Comparison of the two plans.—This plan breaks company with current practice in eliminating specialized courses in psychology (and likewise in other general fields). It contrasts sharply with Freeman's scheme, in that it not only proposes to abolish the specialized courses but also places the general integration course near the beginning instead of near the end of the program. Superficially considered, the Bagley-Evenden plan would seem to call for a drastic reduction in the amount of psychology offered, at a time when the institutions themselves seem strongly disposed to increase the amount. Proponents of the plan declare, however, that the reverse is true: that the plan is designed to put psychology where it will have the greatest influence, in the midst of discussion and observation of real educational problems and in the actual process of teaching. By this device, it is believed that such artificial dualisms of

theory and practice, principles and content, with their tendencies to produce a narrow, academic selection and inadequate application and development of principles, will be avoided.

Such comprehensive plans as these two should be put into practice, and the effects tested, rather than merely discussed. Since the writer's assignment calls for a subjective appraisal, he will offer his opinion, with the admission that it will necessarily be of trifling value.

Merits and limitations of the Freeman plan.—The Freeman plan has the merit of guaranteeing that degree of freedom to specialize which the already large and rapidly growing body of psychological data requires of the well-equipped instructor. It also has the merit of providing adequate time in the program for a comprehensive presentation of the subject for its cultural and theoretical, as well as its strictly practical, values. It provides also for a final survey of the field, which should enable the pupil to integrate his college experiences in the light of general principles and to enter the professional field familiar with late developments and likely to continue to keep abreast of further progress in the scientific study of education. The plan has, in the writer's opinion, two weaknesses. The first is that it permits, if it does not encourage, the isolation of the instructor from the actual functions of teaching, the artificial separation of psychology from other subjects, and the continuation of the academic selection of content and form of presentation. A second weakness lies in the fact that it conflicts with the generalization, which the writer believes to be now fairly well established, that a principle should not be presented *after* the cases it is supposed to illuminate but

at a time when it will to some degree illuminate the particular facts of which it is a summary or generalization, and when it will be illuminated by them. Introduced too early, it is likely to be learned by rote independently of the particulars; introduced too late, its explanatory function can be only partially fulfilled. Generalization and experience should develop together, each enriching the other [57, 56, 76, 184, 192, 193].

Merits of the Bagley-Evenden plan.—The Bagley-Evenden plan has, the writer believes, the merit of introducing general principles early enough to provide for them several years of application, re-

finement, and integration. It provides the time and means of teaching, not only the principles as such, but also the techniques of making use of them in both practical and theoretical situations. It should tend to break down the artificial barriers between psychology and theoretical courses, on the one hand, and psychology and professional activity, on the other. It avoids such artificial arrangements as splitting up guidance in teaching reading into several courses, such as a course in reading content, another in reading methods, another in psychology of reading, and another in observation, participation, or practice. It should direct the attention of the teacher of psychology toward the vital problems of education, and induce him to study them instead of, as is now too frequently the case, restricting his interests unduly to "pure" psychology as such. The scheme, wisely administered, would enable instructors in psychology to become specialists in a phase or phases of education as well as in psychology, for example, in psychology in relation to some of the school subjects, or classroom management, or personality development—a plan which would probably increase the professional fruitfulness of research.

Limitations of the Bagley-Evenden plan.—The Bagley-Evenden plan will doubtless be criticized on the following grounds. It is subject to the difficulties which usually appear when instructors, drawing material from several sources and trained along lines now recognized as more or less distinctive, try to pool materials and work together in one class. If the course, say in teaching of reading, is not taught jointly by specialists in different aspects of the activity, but by one instructor, who shall he be and how is the necessarily broad preparation to be guaranteed? It may be argued that such a program will tend to favor the masterful performer rather than the comprehensive thinker; to increase emphasis upon immediate solution of practical problems and the development of trade-skills rather than comprehensive views and foundations for continued growth. The program may, in other words, tend to produce an undue professionalization of the program, since it may offer difficulties to a systematic development of basal considerations in the "general" fields.

The instructor in psychology is likely, in particular, to feel that

the general integration course comes so early and is so brief that it is likely to become superficial. It is likely to be made elementary and cursory—elementary to fit the freshman status, and cursory because of the necessity of covering a wide range of psychology in a brief course. The second feature—the amount of time devoted to the subject in the introductory course—may, however, be altered without affecting the general plan. Although the first limitation is, in the writer's opinion, a serious one, it may also be removed without conflicting with the policy.

A suggested modification of the Bagley-Evenden plan.—The Bagley-Evenden plan would, so far as psychology is concerned, be greatly strengthened by adopting Freeman's idea of providing a reintegrating survey course near the end of the program. It would go very nicely with the courses in philosophy, general educational theory, and the school curriculum provided in the plan for the last semester of the last year. Since the students have had several years of contact with the subject and are also at a higher intellectual and scholastic level, valuable materials need not be omitted because of difficulty. Since two or two and one-half years have passed since the preceding general survey was offered, the culminating course should incorporate new facts, concepts, and trends in educational research. The course, if conducted not only to review, integrate, and extend general principles, and to introduce new data, but also to equip the finishing students to appreciate trends in theory and research, would contribute immensely to continued growth.

Specialized courses for specialists.—It should be understood that, in the Bagley-Evenden plan, specialized courses would be included for professional specialists, such as the expert in tests and measurements, critic teachers and supervisors in the various subjects, clinical psychologists, curriculum specialists, and the like. Since these courses would be devoted to the interests of specialists seeking technical and advanced training, they would not be subject to the difficulties which arise when classes are composed of a mixture of prospective specialists and classroom teachers. A separation of the groups according to professional interests would enable the instructor better to fit the teaching to professional needs.

As implied above, it is difficult to take into account all of the

influences which may affect the operation of these plans in practice. The plans are proposed not for unquestioning adoption, but for try-out and investigation. It is believed that the Freeman plan, the Bagley-Evenden plan, and the modification of the latter suggested above offer sufficient promise, theoretically, to justify immediate adoption for experimental comparison with each other and with other plans now in practice.

SUMMARY AND CONCLUSIONS

1. The trend in the education of teachers is to increase the length and raise the level of instruction. The four-year curriculum on a collegiate level is becoming increasingly popular.

2. The trend in the teaching of educational psychology is to increase the number of specialized courses, rather than to enlarge the general course. The typical four-year program on the collegiate level now includes six or seven courses; the average for miscellaneous three- and four-year programs is about 5.6 courses. On the basis of frequency, the courses show the following order: "General Educational Psychology," 140; "Measurements," 106; "General Psychology," 95; "Child Psychology," 78; "Adolescent Psychology," 49; "School Subjects," 38; "Abnormal and Clinical," 19; "Social Psychology," 16; "Statistics," 5; other miscellaneous courses, 50.

3. Criticisms of the content of educational psychology reflect in some measure the influence of organizing the program in psychology in teacher-training institutions along the academic lines employed in the general psychology courses in the liberal-arts college.

4. It is suggested that in selecting content in educational psychology, the criteria of (1) practical value, (2) theoretical value, (3) cultural value, and (4) propaedeutic value be more adequately weighted and applied by giving them more satisfactory definition and by utilizing the results of expert opinions, activity analyses, difficulty analyses, and other studies.

5. The fact that teachers of educational psychology are required to carry a heavier teaching burden than other groups, not even excluding teachers of laboratory-practical arts, is believed to be a handicap in efforts to improve instruction in this field.

6. The high rating given to educational psychology (in the results

of studies by Peik and by others) for its value in fostering and producing professional thinking, as well as in practical value, warns us not to appraise psychology too rigidly in terms of mere direct, practical utility.

7. Such apparently divergent recommendations for reform of the program in psychology as those contained in the Freeman plan and the Bagley-Evenden plan seem to agree in advocating a broad, professionalized curriculum rather than an academic or narrowly technical treatment.

8. Reviewing the merits and limitations of these plans, a suggestion is made designed to incorporate the advantages of both.

CHAPTER IV

RELATION OF GENERAL PSYCHOLOGY TO EDUCATIONAL PSYCHOLOGY

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Immediately we consider the question of the relationship of general psychology to educational psychology, we are face to face with the old problem of the relation between theory and practice. General psychology is supposed to be the pure science, and educational psychology is thought of as an applied branch of the pure science.

Teachers are more properly classified as artists and not as scientists. How much of the science does the artist need to know in order to be a good artist? Or, in other words, does a knowledge of the science guarantee improvement in the artist? It is probable that all who have seriously thought about the matter will agree that every sound practice has back of it sound principles, facts, and theories. How much of these facts and principles should a teacher know? It may be that psychology has the same relation to teaching that logic has to reasoning or grammar to good English. Logic and grammar function whenever we have to decide whether our method of thinking or our language usage is correct or incorrect.

If the foregoing analysis is at all correct, the question is raised as to whether from our teacher-training institutions we are going to turn out merely highly trained apprentices or intelligent experts. Can experts in the facts and principles of psychology work out specific techniques and procedures which can be given to students, who in turn make use of these techniques and procedures in the classroom? I doubt that it is possible to carry out any such program. The situations which teachers face are so varied and complex that it is hardly possible for any individual or group of individuals, however expert, to work out a sufficiently large number of specific techniques that will care for all the situations which prospective teachers will have to meet.

We are left with the alternative of trying to produce intelligent experts. It will be recalled that Binet has pointed out that one of the aspects of intelligence is the "power of self-criticism." When a teacher is confronted with a teaching situation, he must attempt a solution. Shall he be satisfied with his solution? If he is a mere apprentice, he probably will be. If he is an intelligent expert, he will become critical of his procedure and attempt to make use of his knowledge of facts and principles in order to decide whether his solution of the problem is adequate or whether he can improve on his technique of meeting that particular teaching situation. Of course, it is assumed that he made use of his knowledge and principles in his attempted solution.

Just what part do the facts and principles of psychology play in producing teachers who are intelligently expert in meeting teaching situations? This question forces the issue of the relation of general psychology to educational psychology. Two positions can be taken in reference to this problem: (1) Some believe that students should be well grounded in general psychology. The more adequate the training in psychology, the wiser can one select those facts and principles which apply to various educational problems. (2) Others maintain that all the psychology educators need to know is the facts and principles which are immediately applicable to some educational situation. It is not the purpose of this paper to argue the pros and cons of the two points of view mentioned above. Our purpose is rather to briefly look into the relationship of general and educational psychology as revealed by practice.

What is the relation of general to educational psychology as revealed by the textbooks in educational psychology? Do the writers of these texts assume that students have had a course in general psychology? Or do they prefer to give the students all their psychology from the educational slant? If one examines some fifteen or twenty of the textbooks in educational psychology, no common practice is discovered. Thus, the texts of Gates, of Sandiford, or of Monroe, De Voss, and Reagan were presumably written to be used with students who have had no previous training in psychology. On the other hand, the books by Starch, by Jordan, and by Trow were written on the assumption that students will have had at least one

course in general psychology before they enter the course in educational psychology.

A similar situation exists with reference to the prerequisites for the course in educational psychology. Upon looking through the catalogues of a considerable number of institutions of higher learning, one discovers that this institution requires a course in general psychology for admittance to the course in educational psychology, another has no prerequisites, another one has, and so on. In other words, there is no consistent practice by institutions as to whether or not students may enter the course in educational psychology with or without previous training in psychology.

In his study of the problem, Douglas has made some analysis of this situation (36). He has also shown that in many institutions educational psychology is listed in the department of psychology; in others, in the department or school of education.

Several studies have been made based on the analysis and comparison of the contents of certain texts in general and educational psychology. Studies that have been made of the materials contained in textbooks in general psychology and those in educational psychology reveal an enormous overlapping. In comparing three texts in each field, Weeks, Pickens, and Roudebush (197) show that the texts in general psychology contain from 98 to 99 per cent of non-school material. The three texts in educational psychology have from 13 to 57 per cent of material referring to school and from 43 to 87 per cent of non-school materials. This study, along with that of Watson (196), reveals a large amount of overlapping of topics covered. On the basis of such studies as these we are forced to conclude that much of what is taught in educational psychology is nothing more than general psychology with a different label.

At Northwestern University general psychology is prerequisite to taking the course in educational psychology. For several years in my sections of this latter course I used the old edition of Gates's *Psychology for Students of Education*. The first five chapters in this text can be listed as material covered in the first course of psychology. While I was discussing certain matters of an introductory nature, I asked the students to read the first five chapters in Gates. After the lapse of about two weeks I administered an examination based on

the assigned five chapters. As a result of this experience I became convinced that the review was not amiss. The experience in general psychology plus the review in educational psychology revealed no large amount of psychological information, nor any profound understanding of psychological principles.

In the spring of 1931 we decided to attack the problem in a more scientific manner. At the beginning of the semester the college psychology tests by Bathurst and Scheidemann were administered to 157 students.

This test is a new-type examination made up of 160 items arranged as follows:

Test Name and Number	Method of Scoring	No. of Items
1. Physiological and neurological psychology...	Rights	36
2. Abnormal psychology.....	Rights minus wrongs	26
3. Animal and child psychology.....	Rights	16
4. Experimental psychology.....	Rights minus wrongs	34
5. Systematic psychology.....	Rights	16
6. Social and applied psychology.....	Rights minus wrongs	32
Total.....	160

A glance at the foregoing analysis reveals the fact that the test administered is weighted with items that can be classified as belonging to pure rather than applied psychology.

Table I presents a comparison of results from Northwestern students with those furnished by the distributors of the test. The percentiles furnished by the authors are consistently higher than those from the Northwestern students. The 50 percentile of the Northwestern students is 10 points lower than those of the other group. The figures to the left in the table were obtained by administering the test to one hundred students at the close of the work of the semester. A period of several months had elapsed between the time most of the Northwestern students finished the course in general psychology and the time the test was administered. This fact probably accounts for the difference between the scores of the two groups.

The same test was given to 192 students in the fall of 1931. In Table II the results from the two Northwestern groups are presented

STUDIES IN EDUCATION

TABLE I

DIFFERENCES IN SCORES MADE BY NORTHWESTERN STUDENTS AND OBTAINED SCORES FOR COLLEGE PSYCHOLOGY TESTS

NORMS FOR THE COLLEGE PSYCHOLOGY TESTS		SCORES MADE BY NORTHWESTERN STUDENTS	
Percentage of Students	Scores	Percentage of Students	Scores
5.....	96.5	5.....	81.1
10.....	90.0	10.....	77.0
15.....	84.0	15.....	73.7
20.....	79.8	20.....	70.9
25.....	77.4	25.....	68.8
30.....	75.4	30.....	67.0
35.....	73.5	35.....	65.2
40.....	71.7	40.....	63.0
45.....	69.8	45.....	60.7
50.....	67.8	50.....	58.8
55.....	66.2	55.....	57.09
60.....	64.4	60.....	55.4
65.....	61.9	65.....	53.6
70.....	59.0	70.....	51.7
75.....	57.1	75.....	49.8
80.....	55.1	80.....	46.6
85.....	52.3	85.....	41.9
90.....	48.0	90.....	34.8
95.....	40.4	95.....	27.3

TABLE II

SCORES MADE BY NORTHWESTERN STUDENTS

Percentage of Students	Scores—Spring, 1931	Scores—Fall, 1931
5.....	81.1	82.42
10.....	77.0	78.34
15.....	73.7	75.33
20.....	70.9	72.14
25.....	68.8	68.92
30.....	67.0	65.70
35.....	65.2	63.35
40.....	63.0	61.26
45.....	60.7	59.31
50.....	58.8	57.58
55.....	57.09	55.86
60.....	55.4	54.17
65.....	53.6	52.50
70.....	51.7	50.84
75.....	49.8	48.30
80.....	46.6	44.87
85.....	41.9	41.85
90.....	34.8	38.77
95.....	27.3	34.03

for comparative purposes. By comparing the two sets of figures, it is readily observed that both groups of students entered the course in educational psychology with about the same amount of knowledge of facts and principles of general psychology. What little differences are to be found in any of the percentiles are so small that they are probably insignificant.

Table III presents the comparison of central tendency of the three tested groups. A study of the figures in this table reveals no significant difference between the two Northwestern groups. The

TABLE III
COMPARISON OF CENTRAL TENDENCY AND VARIABILITY
OF THE THREE GROUPS

No. of Students	Mean	S.D.	Student Groups
100.....	76.4	17.94	Other students
157.....	56.69	16.25	Northwestern, spring, 1931
192.....	58.2	14.80	Northwestern, fall, 1932

mean of the other group is 18 or 20 points higher than are the means of the Northwestern students. This difference is larger than the variability within the groups and would lead us to judge the difference to be real and not caused by mere chance.

The fact that the same status of psychological information is revealed in the two Northwestern groups leads us to suspect that we are dealing with a certain tendency. As a result of taking the course in general psychology, students' psychological knowledge is brought to a certain level. After a period of time, some 25 or 30 per cent has been forgotten.

In June, 1931, at the close of the semester, the same psychological test was administered to the same three sections in educational psychology. Table IV presents the results from the initial and final tests. A study of this table reveals that there is no significant difference in the three classes in either the initial or final tests. The variability within the groups is practically the same. The most significant thing in this table is the fact that all these groups showed a gain in central tendency from around 57 or 58 to 74 or 75. This difference is, in all probability, a significant gain beyond the realm of chance.

It will be recalled that the mean for the group which took the

test immediately at the end of the course in general psychology was 76.4. Thus it is seen that the Northwestern group had, after taking the course in educational psychology, practically attained to the norm established by the other group. One would surmise that, had the Northwestern group been given the test at the end of the course in general psychology, the mean would have been about where it was at the end of the course in educational psychology.

This last-mentioned item raises many interesting questions, only one or two of which will be discussed in this paper.

TABLE IV
PERFORMANCES OF CLASSES A, B, AND C ON INITIAL
AND FINAL PSYCHOLOGY TESTS

INITIAL TEST						FINAL TEST				
Class	M	Mdn	σ	V	N	M	Mdn	σ	V	N
A.....	56.02	58.30	19.90	33.9	46	73.10	73.0	12.15	17.2	50
B.....	58.75	60.00	15.35	26.1	52	75.35	73.7	16.50	21.7	49
C.....	58.50	58.25	17.00	29.0	59	76.40	76.6	14.75	19.2	53
Average.	57.40	58.80	17.40	29.6	75.20	74.4	14.40	19.3

Are we in educational psychology simply bringing the students' knowledge of psychology up to where it was at the end of the first course in psychology? If that is the case, some might well raise the question as to why the course is educational psychology. Some will answer that the tests used in this study give no measure of other outcomes of the course in educational psychology than possession of certain knowledge; that, had a test of application been made, a much more significant difference would have been revealed. This latter contention is granted, but I doubt its validity. No careful analysis of the gains in the different parts of the test has been made, but a rough analysis revealed the fact that greater gains were made on the test in the sections that could be classified as pure psychology. Are we simply reteaching in educational psychology certain aspects of general psychology?

The results of this study may, of course, be due to the kinds of tests used. But the situation as revealed may be due, in part at least, to

methods and conditions under which educational psychology is taught.

I am afraid that teachers of educational psychology, while condemning the theory of formal discipline, are actually practicing it in their own teaching. Are we not teaching this subject on the same basis that any other subject in liberal-arts colleges is taught? Are we not assuming that if we teach our students a certain body of psychological information a mysterious change will occur in the mental machinery of students, thereby making them good teachers? Teachers of educational psychology would readily condemn the practice of teaching the facts and principles of chemistry one semester and then waiting a semester or several semesters before giving the laboratory work in chemistry. Perhaps that is the kind of practice we are carrying out in the teaching of educational psychology.

In this connection, I have no intention whatever of advocating less emphasis on mastery of psychological facts and principles. As a matter of fact, I would emphasize this aspect of our task. I am inclined to believe that psychology is of such a nature that a rather thorough grounding in the fundamentals is necessary before much understanding arises. However, in educational psychology, by the very nature of the case, we are compelled to go beyond the mere grounding. We need teaching situations where it is possible to teach students how to *use* psychological facts and principles in the solution of actual educational problems. We need to teach students to generalize their psychological experience with reference to real educational situations.

No valid conclusions can be drawn from the data in this paper. The data are presented for their suggestive value to teachers of educational psychology.

CHAPTER V

EDUCATIONAL PSYCHOLOGY AS CULTURAL OR FUNCTIONAL

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This chapter contains no discussion of the actual and desirable content of educational psychology in teacher-training institutions, because the important facts and principles pertinent to that topic are presented elsewhere in this volume. Neither is any consideration given to the extent to which educational psychology needlessly duplicates general psychology, especially when a general psychology course precedes and is prerequisite to the first course in educational psychology in undergraduate schools. Principles and details of methods of teaching educational psychology, of measuring achievement, and other similar topics also are omitted. We consider the problem of functional versus cultural values of educational psychology in teacher-training institutions and refer to problems and data from some of these other topics only in so far as they throw light upon the problem of values.

LACK OF AGREEMENT AMONG EDUCATORS AND PSYCHOLOGISTS ON THE VALUES OR OBJECTIVES OF EDUCATIONAL PSY- CHOLOGY IN TEACHER-TRAINING INSTITUTIONS

Psychologists and teachers of education in teacher-training institutions hold diverse views on the values or objectives which should be sought through courses in educational psychology. The courses vary in content; different methods are employed in teaching them; and the evidences of achievement used to evaluate the quality of instruction in them are equally diverse. All of these divergencies in practice are to be expected as results of the disagreement over values and objectives.

Two views are connoted by the title of this chapter. Probably we should begin by defining some of our terms. By common consent we refrain from attempting to define *educational psychology*—a sub-

ject which varies so much in content and sequence of topics, is taught in so many different ways, and is taught (or retaught) in so many other courses in education, such as "Elementary Education," "Secondary Education," "Philosophy of Education," "Principles of Teaching," "Supervision of Elementary Schools," "Supervision of Secondary Schools," and in just "Supervision." Chapters iii, iv, and viii of this yearbook give some notions of what it means for a few of the leaders in education and psychology.

According to Webster, *cultural* relates to "improving or developing by education, discipline, etc.; the training, disciplining, or refining of the moral and intellectual nature." *Culture* is defined as "enlightenment and discipline acquired by mental and moral training; civilization; refinement in manners and taste." *Cultural* refers to a general broadening of the individual's outlook upon various problems of life, such as is often regarded as the essence of a liberal education.

Functional (again according to Webster) relates to the "natural and proper action of anything; special activity; office, duty, calling, operation, or the like." It is often used to refer to the practical or strictly utilitarian.

Strictly speaking, *culture* might be one of the *functions* of educational psychology; but we assume the terms should be used here in the broad general sense of cultural, and in the more or less specific sense of functional, which connotes the practical or directly useful.

It many ways our discussion may be academic, because it is conceivable, even possible (and often seems to happen), that a subject or course may be quite practical or have great practical value and at the same time contribute to the culture of the individual pursuing it. This is particularly true, for example, of certain fundamental concepts in psychology which have to be built up for an understanding of the subject and for any specific applications of it to concrete teaching problems, but which, at the same time, have a distinctive cultural value.

Extreme functional and cultural views.—The issue between educational psychology as cultural and educational psychology as functional is sharply drawn when we find such extreme views as the following:

First, we find the extreme functionalist who insists upon narrowing the subject to very specific applications to concrete classroom teaching situations—really making it a course in methods or devices for teaching reading, arithmetic, language, algebra, chemistry, or home economics. According to this point of view, specific teaching problems are selected and those facts and principles of educational psychology are selected which have immediate practical applications to their solution, all other materials of educational psychology are eliminated, and the course consists of lists of important, highly specific, and concrete teaching problems and the corresponding bits of psychological data appropriate to their solution. "Practical" is defined in the narrowest sense; interrelations and generalizations or inductions are omitted; and attention is centered upon a one-to-one correspondence between specific teaching problem and specific psychological fact applicable to it.

At the other extreme are psychologists who insist that any applications of educational psychology to concrete, vital problems of the teacher, principal, supervisor, or superintendent are purely incidental and more or less extraneous; that the subject is a branch of human knowledge which is related to other fields of human knowledge, as they, in turn, have their interrelations; but that, like them, it stands forth in its own right as a branch of learning having its own content and methods; that it is primarily responsible for extending the boundaries of knowledge of human nature in its manifold relations; that the discovery of a new truth is the source of great joy and satisfaction, whether or not, at the time, the truth seems to have any practical applications. One might find occasionally an extremist of this group who seems to believe that applying truth to a practical problem contaminates it—a view strongly reminiscent of the professor of pure mathematics who, upon presenting a newly discovered truth to an advanced class, said, "I am happy in presenting a new principle which has no practical applications whatsoever."

Many look with skepticism upon educational psychology courses which are organized and presented solely for their cultural value; they fear that such courses may become so widely divorced from the actual problems which students in our teacher-training institutions meet that prospective and experienced teachers will derive

little benefit from them other than a vague general or theoretical point of view. Those holding this view often call attention to the important principle of effective learning which we teach in educational psychology, viz., that material should be learned in the form and in the ways in which it is to be used; they argue that we should apply this principle, as well as other important facts and principles of educational psychology, to teaching the subject itself in teacher-training institutions—a most uncomfortable criticism of the way the subject has been taught in many normal schools, teachers colleges, colleges of liberal arts, and schools of education in our universities, because it probably has considerable validity.

TIME AVAILABLE FOR PROFESSIONAL TRAINING AND TYPE OF INSTITUTION FUNDAMENTAL TO EVALUATION OF CULTURAL AND FUNCTIONAL VALUES IN EDUCATIONAL PSYCHOLOGY

Between such extreme views are a great many divergencies of opinion. We do not expect to reconcile them all, but rather to attempt to present certain considerations in the light of which we believe binding conclusions are to be sought.

In the first place, we must consider the type of teacher-training institution, and what kinds of teaching positions its students are preparing to enter. In the second place, we must be guided by the amount of time at the institution's disposal to give the professional training. These two matters have obvious connections.

INSTITUTIONS TRAINING TEACHERS FOR THE
ELEMENTARY SCHOOL

Two-year courses in normal schools and teachers colleges.—Let us consider the teacher-training institution which receives students with only a high-school education, whose academic status upon admission corresponds to that of freshman in a standard college of liberal arts. Many of these institutions, known as “normal schools” or “teachers colleges,” train teachers for positions in the elementary school. Many of the four-year teachers colleges which grant the baccalaureate degree have also two- and three-year courses leading to the diploma which qualifies the graduate to teach in the elementary schools of that particular state. In fact, in some of the teachers

colleges the two-year course is still the course pursued by the great majority of their students.

If only two years beyond high-school graduation are available for giving all of the professional training leading to the license to teach in the elementary school; if students with no professional background other than hazy reminiscences of particularly good or particularly bad teaching experienced in their elementary- or high-school days are to be equipped for positions as teachers in the elementary school in two years, then every item in the school's curriculum needs to be critically examined to ascertain its probable relative value in such professional training, and all dead materials, all which are of inferior worth, should be displaced by items of greater value. The time is so short and the task is so great that utility in a fairly narrow sense should be, it seems, a guiding principle in curriculum construction. This is the situation which a large proportion of our normal schools and teachers colleges are facing.

Need of functional values shown through proposal that professionalized subject-matter courses replace educational psychology courses.—In order that time may be saved and that more effective training be given, it has been proposed and strongly urged in certain quarters that the subject-matter courses in these institutions be professionalized—that each teacher of subject-matter courses should incorporate into the courses he teaches the relevant facts and principles of psychology. It has been urged that the systematic presentation of educational psychology is not likely to contribute much more to skill in teaching than formal grammar contributes to effective speaking and writing. There are educators who believe that professionalized subject-matter courses will displace the systematic or survey courses in educational psychology in these two types of teacher-training institutions. Considerable attention is directed to their proposals by the fact that the value of educational psychology—especially certain topics which have often received much emphasis in the systematic undergraduate course—is being seriously questioned, notably in the studies by Hertzberg (72), Watson (195, 196), and Worcester (201, 202). Prospective and experienced teachers, psychologists, and other educators believe some topics have little value—that is, little practical value. Better selection of materials and their

more effective teaching seem necessary to meet the widespread criticism of the subject as now found in these institutions. We are inclined to question the wisdom of devoting from one-twelfth to one-eighth of the two-year teacher-training course to systematic courses in psychology unless the courses have demonstrably greater value in teacher training than seems to be shown by the investigations thus far made. It is just at this point, however, that experimental investigation is needed to determine the relative effectiveness of the highly functional course in educational psychology and professionalized subject matter. Whatever the best method may be (and we are not discussing this problem), the very short period for giving professional training seems to point directly toward educational psychology which is highly functional.

Educational psychology as functional in two-year training courses.—Educational psychology may be cultural for these prospective elementary teachers, and we are inclined to believe that it will be in many respects; but we cannot escape the conclusion that it should make direct practical contributions to teaching skills, to understanding child nature and the many concrete problems of the school to whose solution psychology has much to offer. If it is retained as a purely cultural subject, as a systematic survey of the whole field, we doubt that it will have the value it should, and we question the wisdom of retaining it in the two-year curriculum. Professional training presumably should eventuate in greater skill in teaching; and in this respect the teacher-training institution is a technical school, whose emphasis should be upon technique to the extent that reasonably satisfactory standards are attained.

Cultural versus functional values in four-year courses preparing teachers for elementary schools.—Those who have completed the two-year course and receive further training, especially after some teaching experience, may have time for training in which cultural values receive more emphasis. We believe they would be better teachers if they had the broadened outlook which a liberal education connotes. There seems to be a point at which very technical training breaks down, or seems to defeat its own purposes—a point at which broad culture begins to have greatly enhanced values. Unfortunately, however, we are not sure just where this point lies, nor can we get any

consensus of competent opinion showing unequivocally its proper locus. The available evidence seems to indicate that the functional values of educational psychology are the paramount ones in the two-year teacher-training courses.

The four-year courses which train for teaching positions in the elementary school are not so crowded, and may have time to offer such materials in educational psychology (and related subjects) and in such fashion as will round out the student's knowledge of human nature, give him a broad understanding of the functions of the individual in society, and help provide him with those facts and principles, habits, and attitudes which are fundamental to a broad grasp and a more or less independent critical evaluation of some of the major problems of the school as a social institution—such as curricula, methods, etc.

INSTITUTIONS TRAINING TEACHERS FOR HIGH-SCHOOL POSITIONS

Institutions which offer a four-year course to train prospective high-school teachers face a situation analogous to that of the two-year course for elementary teachers. The need of academic preparation to meet the demands for accurate, broad scholarship in subject matter which is more advanced than that taught in the elementary school sets a difficult task for the four-year curriculum leading to the baccalaureate degree. The greater mental ability and broader experience of high-school pupils, together with the need of instruction which leads students to see certain significant relationships between the various subjects, requires of the teacher of the so-called "academic subjects" a high degree of academic training; and similarly, in the industrial and commercial courses. Accordingly, the institution offering the four-year course for prospective high-school teachers is facing a crowded curriculum, with various academic groups seriously questioning the amount of time devoted to professional courses. Whatever the merits of the positions of the various groups in this controversy are, we actually find students spending from approximately 10 to 25 per cent or even more of their time upon strictly professional courses. We do not know what is the best proportion, but we should have a great deal of experimentation to discover how we can make the most effective use of the time now

available for courses in psychology and education. We do not know the extent to which cultural values may be conserved without serious loss of practical values. There seems to be reason for believing that the slightly greater maturity and academic training of those who study educational psychology in the four-year course (they seem to be in the second or third year beyond high-school graduation, whereas those in the two-year courses study educational psychology in the first or second year) may facilitate a broader understanding and better grasp of many relationships with the same expenditure of time and effort. This is particularly true if the student has had good college work in biology, zoölogy, history, philosophy, and certain other subjects. Accordingly, cultural values may be secured more readily at the same time that the more strictly utilitarian values are realized.

Functional value of educational psychology important in the four-year courses of training for prospective high-school teachers.—At the present time there is a meager amount of evidence indicating that experienced high-school teachers are no better satisfied with the systematic courses in educational psychology than are the prospective high-school teachers. A prevailing criticism, by superintendents and high-school principals, of the beginning teachers who are graduates of our colleges of liberal arts is that they know so little how to teach; their professional training has been too theoretical. In fact, the criticisms by employers seem to be very nearly the same as those by the teachers themselves—experienced and inexperienced alike. We are inclined to attach some weight to these criticisms. We are also inclined to believe that the primary function of educational psychology in the training of high-school teachers in four-year institutions granting the baccalaureate degree should be to give help on the solutions of problems of teaching.

Additional grounds for support of the functional view is found in examining some of the studies that have been made of the desirable content and value of educational psychology in training teachers. Charters and Waples (27) sought a primary criterion of curriculum construction for teacher-training institutions through the analysis of teacher activities and teacher traits, thus trying to discover what items should go into the curriculum. This is similar to the criterion

of social utility which is widely recognized as a fundamental principle of curriculum construction in public schools. Watson's study (196, p. 579) presupposes that "educational psychology should provide help on the problems upon which educators are most anxious for help." Furthermore (196, pp. 577-78),

If anatomy is most profitably learned in connection with surgery and dissection, if the proper approach to legal principles is through cases, if one never attains real insight into statistics except as procedures are evaluated in the light of specific research problems, then it may be that educational psychology, in order to influence the thought of educators most effectively, should be approached through the tangled situations to which its laws are supposed to make a contribution.

From the foregoing considerations, it would seem that undergraduate courses in educational psychology should be largely functional, particularly the required courses, and that they should be related and applied to teaching problems as much as time and the insight of the instructor permit. It seems reasonable to expect such a professional course to make a direct contribution to teaching skill, to the solution of the important school problems which teachers, supervisors, principals, and superintendents meet, since teacher-training institutions seek to give technical training which all teachers should have, as well as some training (cultural) which is appropriate for all citizens.

FUNCTIONAL APPROACH NOT TO HAMPER RESEARCH WORKERS IN EDUCATIONAL PSYCHOLOGY

Educational psychology, however, is a live and growing subject. How shall we insure its continued growth and vitality? If psychology instructors in teacher-training institutions devote most of their time to presenting psychological data pertinent to specific school problems, what will be the effect of such a procedure upon their own professional growth and interest, and who will push forward the boundaries of knowledge in this branch of learning? Will not the instructor under this plan lose his interest in research and cease developing in his own field?

Effect of functional approach upon research by instructors teaching undergraduate courses in college and university.—Certain differentiations in the work and functions of the teacher of educational psy-

chology are now found in teacher-training institutions at different levels. These differentiations are due to differences in institutional policies and to differences in the abilities, training, and interests of the instructors themselves. In some cases the instructor has little time for research; in others, little desire or ability for it. In such cases the instructor in educational psychology who approaches and develops his subject by selecting important school problems and seeking the psychological data which are of value in their solution is not likely to find his work burdensome or distasteful. He can keep alert, enthusiastic, and effective by seeking the results of research which from time to time give great help with some of the teaching problems. It seems reasonable to suppose that he will find as great (or even a greater) stimulus to his own professional growth from such an approach to his subject as would come from the traditional survey course which is often so barren of vital contacts with educational issues.

To the instructor who has a flair for research and who has the requisite ability and interest in carrying on significant researches, the functional or problem approach will probably have a decidedly valuable stimulating effect upon his professional growth. As he seeks data to solve important school issues, he will come upon many gaps and inadequacies in the available psychological data and will find problems enough for research and investigation. Necessity is said to be the mother of invention. Accordingly, the need of psychological data to solve vital problems of teaching should prove a powerful stimulus to research. We can conceive of no more powerful incentive to investigation than the lack of knowledge to solve an important problem. Not only do we doubt if developing educational psychology inductively or practically through the discussion of school issues will limit the output of fruitful research among instructors handling the undergraduate work in educational psychology in our colleges and universities, but we believe such a procedure will greatly increase the investigation of important problems. Research implies problems. Discovering improved ways of learning a modern foreign language, for example, seems to be as intellectually respectable and clean as investigating the learning of nonsense syllables; and finding out how to develop effectively certain specified

altruistic elements in the character of the twelve-year-old boy or how to lead him to the appreciation of good literature would seem to be as valuable research as running rats in a maze or finding the multiple correlations between (1) reaction time and (2) rate of tapping and card sorting, with the ability to cancel *a*'s and *t*'s held constant by the partial correlation technique or by some method of grouping which gives equally valid results.

Value of systematic survey courses and functional approach in advanced graduate work.—The advanced graduate work in educational psychology which trains teachers of the subject will necessarily be upon the basis of full freedom. The research worker of ability should have freedom of choice and be permitted to allow his interests and abilities to carry him into fields of greatest attraction to him. Fullest freedom for research is needed for the few workers of eminent ability. The narrow criterion of practical applications should not apply to them—they are free lances seeking truth for its own sake. Yet they are the ones most likely to discover new truth that aids in solving the practical problems of teaching. Systematic courses in educational psychology at advanced levels are likely to prove of much value to those students pursuing graduate work in preparation for teaching educational psychology in the more advanced teacher-training institutions. We are inclined to believe that the criterion of functional or practical value may well be applied to educational psychology even at these levels so as to place greater emphasis upon the parts of most worth in the elementary courses in the subject.

CONCLUSIONS

With our present limited knowledge of experimentally determined values of various approaches to educational psychology and of the various functions it may serve in teacher-training institutions, any conclusions to the discussion of educational psychology as cultural or functional must of necessity be tentative.

1. The value for teacher training of educational psychology as a survey course which sets forth in systematic form the facts and principles of the subject, upon the assumption that they will be applied widely to teaching situations and other problems, is questioned seriously in many quarters, especially as part of the two-year course which is designed to train teachers for the elementary school; and less

seriously as part of the four-year course of training given prospective high-school teachers. When time permits, advanced undergraduates can profit from such a course, since it can be of much value in giving them insight into many problems of human nature and in helping them develop some of the elements fundamental to a certain independent self-direction in attack upon problems.

2. The value of educational psychology offered solely as a cultural course in normal schools, teachers colleges, and colleges of liberal arts has been vigorously assailed and as vigorously championed. The brief time in which to give adequate professional training weighs against the strictly cultural function of the subject in teacher-training courses in these institutions. In graduate schools, where more time is available for professional training and where students have greater maturity and background and broader outlook, cultural values and functional values may possibly be secured at the same time.

3. The functional approach has been strongly advocated in the past few years. Those who hold this view insist that the courses should be built around vital school issues or educational problems; that the subject will thus contribute most to the professional training of teachers. Much work needs to be done to develop courses from this point of view. There seems to be valid argument for courses of this sort which do not become so narrowly utilitarian as to prevent those opportunities for reflection, generalizations, and the comprehension of important interrelations through which the individual's progress in knowledge and understanding is often furthered as much as by the acquisition of new facts. We believe this approach has much to commend it, especially in undergraduate courses where time is limited; but it has value also as a technique by which the advanced student may ascertain the points at which it is vitally important that further psychological truth be discovered. At all levels of instruction in educational psychology it has value as one way of testing the relative importance of psychological facts and principles.

4. At the higher levels, full freedom for research in line with the worker's ability and interests is good insurance that the subject will continue to grow, even though an occasional checking of psychological data through consideration of practical problems is likely at these levels to prove a powerful stimulus to significant research.

CHAPTER VI

METHODS OF TEACHING EDUCATIONAL PSYCHOLOGY

F. B. Knight, State University of Iowa

Introduction.—For the preparation of this report advantage was taken of condensed reports of the methods used in a sampling of educational-psychology courses in representative institutions. Reports of the methods from such institutions as, for example: the University of California; the University of Chicago; the University of Cincinnati; Clark University; Teachers College, Columbia University; DePauw University; Harvard; Kansas State Teachers College; the University of Michigan; the State Teachers College at Moorhead, Minnesota; the University of Nebraska; New York University; the College of the City of New York; Northwestern University; Pennsylvania State College; the University of Texas; the University of Washington, at Seattle; and Western State Teachers College at Kalamazoo—these make profitable reading. It would perhaps be better simply to reproduce these reports, but for purposes of economy of space the present report will attempt to give in general terms a composite picture of current methodology.

Most courses in educational psychology give some attention to the psychology of the school subjects, but as yet relatively little data have been produced on the psychology of educational psychology. The educational psychologist has been so busily engaged with the problems of teaching in the elementary and high school that he has not psychologized his own teaching methods in anything approximating completeness. Perhaps he might argue that such self-study is a bit too introvertive, and should be avoided if he is to practice the counsel given in that section of the course dealing with abnormal and unfortunate types of mental habits.

A well-known current interest in educational research deals with investigations of content, organization, and methods on the college level. Such investigations are centered on liberal-arts courses (with

notable exceptions). Since such studies do not often bear directly on the teaching of educational psychology, they will not come within the scope of this report.

As educational psychology studies itself, certain problems will no doubt receive diagnosis and treatment. From the data available, little is being done relative to (a) sectioning pupils on the basis of ability, (b) specific training on how to study psychology, (c) the relative learning difficulty of units of the course, (d) the reading difficulty of material, (e) the problem of motivation, especially in required courses in educational psychology, and (f) the arrangements of topics in a psychological, in contrast to a conventional, order. It is possible that students of educational psychology are, on the whole, so self-reliant that the subject need not have a scientific basis for its methodology.

It should not be thought, on the other hand, that teaching in this field is static. Certain well-defined tendencies are apparent. However, in the many digests of methods used in either beginning or advanced courses, one finds no sentences or ideas such as the following: "Our course in educational psychology is based on the felt needs of the students. We do not determine either the content of our courses or the methods used. The pupils follow their own creative drives and we stand ready to give advice and suggestions when asked to do so." Whatever else may be said about the teaching of educational psychology, two facts are evident: First: there is offered a predetermined, fixed content (except where the use of current publications makes for a certain flexibility). Second: the instructor assumes the responsibility for the methods.

Introductory courses.—An assigned text and systematic lectures by the instructor share responsibility for providing the student with the content of educational psychology. These are supplemented rather frequently by a variety of devices. The more important supplements are: (a) the thorough reading of a second basal text, (b) assigned readings from a number of texts varying from one to twenty in number, (c) the blocking-out of the main topics of the course in mimeographed form, (d) the use of study outlines ranging from a list of questions upon which the student may be expected to write or talk, to organized work-books containing objective tests keyed in

with the study material, practical problems, topics for class discussion, and suggested subjects for further study by students who wish to carry their study beyond the minimum requirements, (e) lantern slides and, in a few instances, motion pictures illustrating points emphasized in the lectures, (f) class, group, and individual experiments of both a statistical and laboratory type, (g) the use of researches and discussions appearing in current periodicals.

Not all of the supplements listed in the previous paragraph are used in any one course, but a combination of certain of them is found in most courses. The following impression is gained by a study of the digests of methods referred to at the beginning of this report. The orthodox laboratory experiment is playing a very minor part. Statistical experiments, especially those dealing with educational tests, are becoming rather common; some form of study guide is found useful, particularly in the case of large classes, and with instructors somewhat burdened with heavy professional loads, optional and required readings beyond the scope of the required basic text. The possibilities of "visual education" by way of motion pictures appear numerous to the few instructors who have made use of this technique. In first courses in educational psychology there is evidently little observation of education at work in the schoolroom and little, if any, clinical experience provided.

Relative to class organization, some attempts are being made to break up large classes into sections small enough to make class participation by the pupil possible, and intimate contact with the instructor feasible; but on the whole, first courses still maintain large groups varying in size from 50 to 250 students. Required attendance on class meetings is the usual practice. The few instructors reporting the practice of voluntary attendance seem to have found the student quite willing to come to class even without being compelled to do so.

Examination techniques show two definite and distinct tendencies: the use of the objective in contrast to the essay type of examination, and the use of many short tests during the course in place of a few long and formal examinations. It should also be noted that the "pretest" is used with good results. Subject matter responded to satisfactorily in the pretest is omitted or treated very shortly in the

course itself. On occasion the pretest is repeated at the end of the course, to help in demonstrating the actual gains in information which can be accredited to the course itself.

The special report by students and committees is a frequently used device favoring individual and original work. The scope of these reports ranges from the discussion of a single question to exhaustive treatises approximating several chapters of a text in size and wealth of material studied. The term paper, sometimes presented in class by its author, has great merit in the opinion of many instructors.

Advanced courses.—The methods of content mastery and the types of examination used in advanced courses seem to be fundamentally the same as those used in first or elementary courses. There are, however, several factors emphasized which are not featured in first courses with their larger enrolments. The basic text loses its prestige very definitely in advanced courses. This may be due to the fact that very few genuinely advanced texts of recent vintage are available. In the place of one or two basic texts the advanced student uses selected readings from a great variety of texts and articles appearing in the literature. The use of the library for short references from many different sources is so constant that provision for really adequate library facilities is an administrative problem of prime importance in colleges of education. A great many instructors would probably welcome an advanced educational psychology text which would cover the content of the field according to the standards of 1932 as well as Thorndike's three volumes did for the educational standards of 1914.

The formal lecture is another technique receiving less stress in advanced courses. Class discussions, reports by students, and short interpretative lectures informally presented predominate. Laboratory experiments in the strict sense do not seem to be employed, but definite training in statistics and the solving of educational problems with the use of statistics are two tendencies which seem especially commendable. The students individually or in groups come to grips with problems of educational psychology by visits to elementary and high schools, and these visits do not limit themselves to popping in and out of classrooms with gracious smiles, the favorite

manner of blessing the schools on the part of a great many practical supervisors. These visits extend themselves to continued attention to specific problems. In certain advanced courses interne work in education clinics is provided. The students in such instances are held responsible for clinical examinations of many kinds, and a few instances try their hand at therapy as well as diagnosis.

The examination in advanced courses is becoming objective in type with impressive frequency. Written reports on special topics provide opportunities for continued study on a single problem.

The seminar.—Seminars in educational psychology are, it would seem, the strictly private affair of the professor concerned. Those professors who so graciously took time to describe them, confined their descriptions almost entirely to the content of the seminars in contrast to the methods used. Content is, of course, beyond the scope of this report. Surely the absence of teaching method in seminars is a most proper solution of the problems of methodology. Students who have any qualification to be in a seminar are no longer concerned with pre-determined content or scientifically controlled learning methods. Here, if anywhere, the formless pedagogy of the "felt-need" philosophy is properly in the ascendant.

Conclusion.—It is evident that, at present, methodology in teaching the psychology of education is a rather peaceful sector. Few are attacking the *status quo* and still fewer feel called upon to defend it. This inactivity is condoned by the consideration that reasonable men and women are teaching relatively mature students a subject of such inherent interest that it almost sells itself. The force of circumstances may yet make it wise for psychology to psychologize itself. Such circumstances would be, in the main, an increase in teaching skill in the liberal-arts courses. When such an advance in that field is apparent, competition or student interests in educational psychology will be increased. When it becomes necessary to present educational psychology more attractively, the prediction may be hesitantly offered that, among important improvements in method, there will be vitaphone lectures by "famous" teachers, the bringing of actual classroom problems of elementary and high-school teaching into the college lecture hall by way of the movies, the frequent use of standardized study tests, thus making it possible for

the student to be continually aware of his success in the course, the extension of clinical internship duties, and the emphasis upon deep understanding of a few major problems in contrast to a superficial glance at a host of topics. To these suggestions should perhaps be added the important consideration of selection of students for such courses. When entrance requirements into professional schools for teachers are as selective as those for medical schools are claimed to be, many of the problems inherent in the teaching of educational psychology will be canceled out and those which remain will be considerably diminished in difficulty. Elimination and qualification at the beginning on the basis of a defensible aptitude-test program is probably the most important problem with which our overcrowded profession is now faced.

CHAPTER VII

MEASUREMENT OF PROGRESS AND THE COMPREHENSIVE EXAMINATION

Wm. Clark Trow, University of Michigan

The day of the examination came. . . . The genealogical register, from Adam to Abraham, from the first book of Chronicles, was given me to read. After this, Chairman Schlapfer gave me an uncut quill, with the direction to write a few lines. "What shall I write?" I said. "Write the Lord's Prayer, or whatever you like," was the answer (99).

Such was the comprehensive examination administered to the eighteen-year-old Herman Krüsi in 1793, on the basis of which, supposedly, Pestalozzi's future disciple obtained his first teaching job in the little Swiss commune of Gais. But he was really selected because of other considerations: since he was younger, it was thought that he should learn what was necessary sooner than the other applicant; and, moreover, his dwelling was more suitable for a school-house.

It is the purpose of this chapter to inquire into the comprehensive examination and the other considerations by which a candidate's proficiency should be judged. The technique of examinations, within the past two decades, has been developed to a point never before attained; and the educational psychologists who have participated in this movement are the ones who, by nature and training, are best qualified to carry forward this work by further investigation into the adaptability of current examination methods and of other forms which they can devise, so that the task of teacher certification and placement will be put on a sounder and more scientific basis.

The task of a teacher-training institution from this point of view is fourfold: (1) it should *select* those candidates and only those who give indication of sufficient ability to become successful teachers; (2) it should *train* those who are admitted, in such a way that demonstrable progress or growth is evidenced in the various things which go to make up teaching ability; (3) it should *certify* only those whose

growth and achievement are such as to qualify them for teaching; (4) and lastly, it should so *place* them that their talents may be employed to the best advantage.

SELECTION

At the present time the selection of applicants to teacher-training institutions is in a deplorable state, for two reasons. The first is the competition for numbers; for as long as mere size is accepted as the criterion of excellence, there is little hope for a discriminating selection of candidates. The second is the lack of any dependable device for the selection of those who are to be trained. This matter of selection is the major problem confronting psychologists interested in teacher training and the one where the most important contributions can be made.

But criteria for *admission* suggest the desirability of criteria for the other stages of progress in the academic and professional preparation of teachers; i.e., *certification* or graduation (the Bachelor's degree), the *Master's*, and the *doctorate*. The delineation of these stages is usually vague, even in the same institution; and progress from one to another is made primarily in terms of the number of courses passed rather than in terms of actual ability, knowledge obtained, and skills mastered. The relation of this condition to admissions is this: Whatever standards are set up for admission to teacher-training institutions, some of them should be of such a nature that further progress along the same lines can be measured at the later stages.

TRAINING

The very existence of teacher-training institutions implies certain assumptions. The first and most basic assumption is that *improvement in the skills necessary for teaching is possible*. This is probably a safe assumption, though any school is proudest of those whose ability is such that little needs to be done about it.

The second assumption, that *the environment provided by the teacher-training institution promotes the more rapid growth of teaching ability*, is so firmly held that skilled teachers are prohibited by law from teaching until they have subjected themselves to this benign environment for a period of time made up of the ever-necessary

"hours," though no effective diagnosis is made of the peculiar needs of the patient or the kind of treatment his case demands.

The third assumption is derivable from the second and from current practice: (a) *Knowledge of the subject matter to be taught, and (b) of educational theory, and (c) practice in the teaching skills, are necessary elements in teacher preparation.* The first has almost been denied by educational theorists, and is denied daily by school administrators who place beginning teachers in charge of classes in subjects they have never studied. The second is denied by almost every professor in all reputable liberal-arts colleges. And the third is virtually denied in view of the meager amount of practice teaching that is afforded in many institutions.

In spite of all these denials, teacher-training institutions continue to function, as efficiently, no doubt, as others, bolstered up by arguments, political pressure, and conscientious work, and harried quite consistently by intermittent guerrilla warfare with marauding bands of those who look with hungry eyes upon the educational appropriations. And yet, in the very institutions which have made measurement famous, little or no effort is expended in demonstrating the value of the training these institutions provide.

CERTIFICATION

The certificate to teach should be awarded only when the candidate has demonstrated that he has specific, objectively measured qualifications deemed necessary for successful teaching. And yet, with the loose marking systems now in vogue, and with the attainment of degrees by the addition of credits, so many teachers are certificated that city school systems are forced to put up their own barriers to stem the tide of applicants. They must have experience; they must begin in the elementary schools if they want positions in high schools; they must take more courses in the local teacher-training institution; they must have an A.M.; they must pass such and such examinations, etc. How much more reasonable to restrict the flow at the source! But how can this be done?

The examination, bowed down as it is with hoary respectability, is naturally the first resort. Upon course examinations, mid-term examinations, tests and quizzes, are superimposed general examinations, qualifying examinations, comprehensive examinations, and

honors examinations. With this renaissance of the examination there is danger that much that has been learned during the last decade or two about techniques may be omitted and that faulty and discarded practices may be resumed.

Many institutions have adopted some form of comprehensive examination in the connection with an "honors" system. Superior students have been allowed to take such examinations based on their own reading, and they have thus been freed from the compulsory day-to-day routine of classes. Many plans have been followed which might well serve as examples for something similar in courses in education. Reeves (155), in his chapter in the *Seventeenth Yearbook* of this Society, outlines a number of plans in current use and cites several references. Among these are some which report rather extensive investigations of the problem, notably those of Aydelotte (3), of Richardson (156), and of Committee G of the American Association of University Professors (68). A number of available reports from various institutions do not appear in this bibliography, some of them having been published since it was issued; e.g., that of McMillan (114) entitled, "Mass Education at the College Level." Barrows (10) confirmed the general impression that "honors" in American colleges means awarding honors marks and offering honors courses with comprehensive examinations. From a questionnaire study involving the deans of 103 colleges reported as offering honors courses, from which 92 replies were received, Sinclair and Taylor (175) found general satisfaction with the plan to be the common attitude. Comprehensive examinations in the major field are consistently required, while course examinations and theses are employed less frequently.

A number of writers have reported on the success of the plan employed at their institutions: Gildersleeve (61) at Barnard, Nixon (137) at Pomona, Pilgrim (149) at Franklin and Marshall, and Sanders (166) at Park. At Wesleyan (214) a report was made by an undergraduate committee on the comprehensive final examinations. Duckett (37) describes the method of awarding the honors at Smith,¹ but the plan was changed in 1931.

According to the new plan, the comprehensive, honors examina-

¹ Information concerning the Smith plan was furnished by Professor Maurice H. Crosby.

tions were at first to be given only to those who were deemed eligible to apply, of whom there were 97 from 18 departments. Uncertainty about border-line cases resulted in throwing open the privilege of applying to all seniors (approximately 400), which resulted in 61 more applications, of which number 17 were accepted. It is interesting that of this latter group, though none passed "*summa*," six were graded "*magna*" and five "*cum*"; while from the original list of eligibles, nine failed. The "honors" were finally awarded by "taking into account the grades on courses as well as the results of the general examinations."

Swarthmore¹ has had an honors system for a number of years, but more recently the scope was widened.

The initiative for the comprehensives at Swarthmore actually came from the student body. Feeling that there were advantages in our principle of Honors work which they should like to enjoy, the general students of the senior class some years ago petitioned for this plan The questions cover the major field in which the student has studied and require him to be ready with replies upon all important phases of the major subject taken in the preceding years. The examinations are written and are followed, in most instances, by orals.

Students taking the comprehensive examination are exempted from the senior examinations in their specific major courses. Some of the questions appearing on the general examination might be picked out of a list of course examination questions; others, however, demand a wider sweep.

The cases of Smith and Swarthmore are fairly representative of a large number of colleges where there is an honors system with examinations harnessed to the course system, or operating so as to include those who make no boast of being candidates for honors. The plan of organization for several such colleges has been tabulated by Kinney (95) in an unpublished report, derived from the sources referred to above and from the several college bulletins.

The practices of colleges requiring the general final examination for graduation are likewise tabulated. These have been obtained from the reports of Sills (173) at Bowdoin, Sanders (166) at Park, of Tatlock (182) for California, Mount Holyoke, Princeton, Reed,

¹ Information concerning the Swarthmore plan was furnished by Dean Raymond Walters. Also see Walters (191) and Brooks (18).

Washington, and Whitman, and likewise from the several college bulletins of these institutions and of Radcliffe and Wesleyan.

A thorough reorganization has accompanied the introduction of the comprehensives at Colgate,¹ the main features of which are: (1) the grouping of the various departments into six schools; (2) survey courses in these during the junior-college years; (3) concentration and an individual curriculum for each student; (4) tutorial and seminar work in a particular field of honors students. The comprehensives are planned to be "power tests" of application of facts and implications, and as much as one-third of each may be of the new-type variety which co-ordinate and unify. The reorganization was announced before that at Chicago, but the comprehensives will be used for the first time in the spring of 1932.

Two of the larger universities have attempted thoroughgoing reorganizations that should be viewed in more careful detail, embodying, as they do, most of the regulations promulgated in the other institutions.

*Harvard.*²—The system of general examinations and tutors in Harvard College (207), peculiarly enough, got its start in a graduate professional school—the faculty of medicine—in 1910. During the next two decades it was followed by other faculties both graduate and undergraduate, so that now practically every department having a large number of concentrators has adopted the system.

At the undergraduate level it operates chiefly in the upper-class years, and is supported by the tutorial system (155) and by the "reading periods" during which for two or three weeks twice a year there is neither lecturing nor tutoring.

The division examinations are long, usually three three-hour periods. Their function and operation are explained by the quotations which follow, from the Harvard report (207):

The intent of a general examination upon the main subject of a student's work in college is to ascertain not so much the amount of his knowledge as the use he can make of it; to measure his grasp, his power of thought, the extent to which his studies have moulded the fabric of his mind [p. 11].

¹ Information concerning the Colgate plan was provided by Dean C. H. Thurber.

² Information concerning the Harvard plan was furnished by Professor Francis T. Spaulding, of Harvard. Also see Gay (59), Lowell (107, 108), and Tatlock (183).

In history, government, or economics, for example, every candidate for a degree must take an examination of a general character in the two subjects in which his principal work does not lie, a second examination covering in more detail the one in which it does lie, and a third, more searching, on his special field therein [p. 13].

The same kind of arrangement holds in the other divisions.

Certain of the examiners are excused from a part of their teaching, some carrying only half the usual load. Seven to eight per cent of those taking the examinations usually fail; of these, about half succeed in passing at a second trial a year later. The questions are of the usual "essay type," beginning with "discuss," "explain," "comment on," "evaluate," "compare," etc., though they are usually well chosen.

The sample questions furnished by the graduate school of education for the use of its students (206) are of the same kind. Requirements for a Master's degree are threefold: (1) courses (none prescribed) lasting over a period of two years; (2) apprenticeship—practice teaching or other practical training on the job; and (3) a general examination. "The General Examination is intended to test the student's power to correlate the knowledge he has gained in his various courses and to apply it both to general educational problems and to problems in the field of his special interest."

The case for the general examination can be developed around two points: (a) It makes for a co-ordination of isolated viewpoints, for the application of things learned in one course to the problems studied in another, a harmonizing and unifying of the results of the graduate work done in the field of education. (b) Instructors aim to meet the requirements of the examination, a condition which is not viewed with alarm so long as the examination maintains its present form. Thus far, at least, courses have not become cramming exercises, though some have broadened their scope to emphasize the correlated problems, with the result that the course examination is dispensed with.

The case for the negative applies equally well to any examination, or to the essay type in particular: (a) There is an overemphasis on examinations that tend to be abstract and academic and to stress immediate retention. (It is believed that the other requirements and

the type of questions employed weaken the force of these objections.) (b) The other arguments apply particularly to the written examination in contrast to the short-answer form: only a sampling of the student's knowledge is obtained, the questions may be misinterpreted, and the examination is subjective.

*Chicago.*¹—In the new college plan at the University of Chicago (208, 212), comprehensive examinations are given twice a year; in case of failure they may be taken a second time, but they must be passed within a period of two calendar years. They are administered by a college board of examiners, each member of which “teaches not more than one course a quarter or three courses in any academic year.” The board is assisted by an examining committee from each department. The required course examinations are abolished along with the old system of credits, in which respect the scheme “goes farther than the Harvard plan.” The work is presented in terms of “fields,” in which the students are examined; and “in four years a superior student could earn a Master's degree, on attainment of more significance and value than a Bachelor's degree with honors.”

The examinations for the completion of the college requirements will not be restricted to a particular type, but will include any kind of test, investigation, problem, assignment, or creative work by which the abilities, achievements, or performance of students may be measured. We shall use the short-answer type of examination, the essay or discussion type, the problem type, and in some instances a supplementary oral examination [208, p. 6].

Comments secured from instructors on our Personnel Cards may be given consideration along with the results of the examinations in passing judgment on a student who, as a candidate for the college certificate, is a marginal case in the light of his performance in the examinations only. . . . Quarterly reports are received from instructors who are free to use any class period for an examination; however, they are not required to grade a student either by numbers or letters, but will be asked to write a brief statement regarding the performance of the student and to indicate whether the student has or has not made satisfactory progress [212, p. 10].

The plan for admission to the senior college has been abbreviated for convenience in Table I. The examinations provide various opportunities for selection as between general fields and parts of the

¹ Information concerning the Chicago plan was furnished by Dean C. S. Boucher and by Professor L. L. Thurstone.

fields, and are designed to test "breadth and depth" of preparation for concentration in the senior college.

For the A.B. degree three final examinations are given as follows (with the amount of time required for each):

1. Major field of concentration, 6-8 hours.
2. A complementary minor field, 3-4 hours.
3. A second minor field, complementary or unrelated, 3-4 hours.

TABLE I
SENIOR COLLEGE PLAN, CHICAGO

Requirements of the College Division ("Junior College")	Instruction (Not Compulsory)	Comprehensive Examinations
1. Minimum essentials in four divisional fields: Humanities Social sciences Physical sciences Biological sciences	General courses (lectures, syllabi, tutors, conferences)	1. English literature 2. Latin, French, or German 3. Social science 4. Natural science and mathematics
2. Mastery in two of the four fields	Advanced divisional courses, conferences, subject sequence	5. Choice of foreign language, mathematics, art, home economics, or early specialization in any field. (English composition is evaluated from all examination papers.)
3. Ability in written English	Course, if needed	
4. Reading knowledge of a foreign language Elementary mathematics	Courses or two entrance units	

Form of the comprehensive examination.—Despite the numberless studies that have been made and scales that have been constructed on the elementary- and secondary-school level, and despite the excellent beginnings in the field of higher education as reported, for example, in the *Eighteenth Yearbook* of this Society (209), the essay examinations are in vogue, and the new-type tests are not trusted.

Harvard constructs enormous, 10-15 page examinations, that the students may reveal their "grasp" and "power of thought." Swarthmore punishes its honors seniors with from eight to twelve three-hour examinations—thirty-six hours of examining, while others find five hours sufficient. Chicago leaves the door open for any kinds of test to be employed, and at present five full-time examiners are at work developing objective examinations for the junior college years.

These will represent thinking and problem-solving on the part of the student during the examination much more than is usually the case in the short-answer forms.

An unpublished study by Kinney (94) reveals the fact that at the University of Minnesota, "objective questions are in use in about half of the departments, and that in the departments in which objective tests are used the examinations and tests consist of about equal parts of the objective and subjective types of questions." Reasons for each were assembled as follows:

Reasons for preferring the objective type of question:

1. Ease of scoring
2. Convenience in testing large classes
3. Comprehensive sampling obtained
4. Reliability
5. Validity
6. Objectivity
7. Clearness and conciseness

Reasons for preferring the subjective types of question:

1. Nature of material
2. Reveals lack of knowledge
3. Less possibility of guessing
4. Opportunity to arrive at original solution
5. Opportunity to organize ideas
6. Better test of ability to express ideas
7. Better type of studying results
8. Papers can be returned for discussion
9. Discriminative ability
10. Are more educational

Of the reasons expressed in favor of the subjective or essay type of examination, certainly (2), (3), (8), and (9) indicate a questionable advantage over the new-type tests, as do the somewhat dubious reasons (7) and (10), the latter coming from the agricultural college. Numbers (4), (5), and (6) are the most important, and might be subsumed under (1).

So far as the reasons for the preferences for the objective-type questions are concerned, (1) and (2) are important only if the major purposes of the examination are served as well in this manner. It is hardly the purpose of this chapter to go into the rapidly increasing

literature comparing the different methods of testing. The general agreement to the effect that the objective-type examinations test information more effectively, and that they are more valid and more reliable, tends to throw the burden of proof on the other side.

Of course, if the object of studying a certain field is to be able to organize and express more or less original ideas in that field, it may be that the only way to test the student's knowledge is to ask him to organize and express ideas in that field—in the form of a composition, character sketch, discussion, or treatise. Even against this it may be urged:

1. That those who know the facts are, as a rule, those who can use them, so that in measuring the one, the other is also measured.
2. That the comprehensive examination questions do not test this originality as well as is supposed, for many of them call for relationships, comparisons, etc., which are made in the books the students have studied, and in the courses which they have taken.
3. That objective type examinations can be constructed to test functions which are not as yet adequately measured by them.

This last point is certainly debatable, and probably there will always be a place for some discussion or easy-type questions, but perhaps not so large a place as at present.

However, the possibilities of objective-type examinations have not as yet been fully exploited. The three usual varieties—true-false, multiple-choice, and completion—have been the subject of numerous studies of reliability, validity, etc., but often on the basis of items which are themselves somewhat dubious, as Manuel (209, chap. viii) has intimated.

Interesting variations of these forms are beginning to receive attention. Holmes and Heidbreder (75), for example, have shown that the wrong-word type is as satisfactory statistically as the more usual forms, and at the same time demands more exact information and more careful judgment.

McClusky and Curtis (110) have suggested a modified form of the true-false tests which goes a step farther. The statement must be judged true or false as it stands; if false, the error must be not only detected but also corrected. In similar manner, Curtis and Woods (34) have introduced a modified form of the multiple-choice test,

which provides the student with a blank space to write in the correct response if it does not occur among the choices provided.

More use could be made of the matching test, the problem test, and the diagram test. And it is more than probable that rather accurate measures of the present bugbear, "the ability to organize ideas," could be constructed.

This discussion of the comprehensive examination may be summarized in a series of theses which, though they are all debatable, nevertheless seem to point in the direction of accepted practice.

1. Comprehensive examinations in the major and minor fields of concentration should be required of all specializing in any scholarly field as a basis for graduation, certification, etc.

2. As a preparation for these examinations, courses (for which attendance is not compulsory), syllabi, and book lists should be provided.

3. Examinations should be set by others than the class instructors, and examiners should be freed from a part of their teaching load but not be penalized in rank or salary.

4. Examinations should be, so far as possible, of the objective type, and examiners should have sufficient assistance, both statistical and clerical, to evaluate the examinations properly.

5. Certain objective portions of the examination should be of the same nature as those given upon entrance and as those required of candidates for higher degrees, that a measure of progress and growth and of the effectiveness of instruction may be obtained.

6. Students should be permitted to take the examinations when they have given evidence of being ready for them, whether the time spent in preparation has been shorter or longer than the usual required amount.

7. All examinations should be offered twice each year, and all those required of a student should be taken during one of these periods. In case of failure he should be given an opportunity for a re-examination at any later examination period.

8. Other requirements should be met which may be deemed important in view of the candidate's peculiar needs or the nature of the degree or certificate sought.

PLACEMENT

This last thesis suggests the "other considerations" previously alluded to and opens up a number of difficulties, particularly in relation to professional training. Whereas, in the comprehensive examinations required for a Bachelor's degree the view is backward, toward knowledge previously required, in professional preparation it

is forward as well, toward the functioning of this knowledge in action. This functioning is to be looked for in the schools, and the consequent need for analyzing school environments to throw light upon the nature of teacher success or failure presents a neglected but important problem.

But the side of teacher analysis has been quite as badly neglected. Ullman (189) studied the possibilities of prediction of academic success through tests and principals' ratings. Minnesota is working on the problem of prediction through objective tests at the graduate level. But such studies as these are only a drop in the bucket. Meanwhile the placement offices must continue to use "recommendations" which are sales talks rather than analyses. If something is to be done, it will be necessary to set up a system on the basis of objective data to operate over a period, say, of ten years—a system which is not too cumbersome, and which will include sufficiently accurate records to make analysis profitable.

It is with considerable hesitancy that such a system is suggested, especially since the necessary detail either to defend it or to put it into operation must be omitted. However, it may be worth while to submit such a tentative scheme (the dogmatic form of which is merely for the sake of brevity) in the hope that a number of institutions will modify it as they think wise, run it for a few years, and then report their findings to this Society. A few such reports might even be considered good material for a yearbook, say for the year 1937 or 1940.

A PLAN FOR THE MEASUREMENT OF PROGRESS IN TEACHER TRAINING

1. *Health rating.*—A rigid physical examination should be given to all students upon entrance and again just before graduation. The first should be diagnostic, with a definite program for the correction of any physical defects that may be found. These should be checked in the second examination. A health rating of the student should be made on the basis of each examination.

2. *Intelligence test.*—While the correlation of the intelligence of college students with their teaching success has been found to be low (47, 176), largely because of the selective character of the college, nevertheless more information on this point in connection with other data would probably be valuable. The test used should be one designed for college upper classmen rather than for high-school seniors and college freshmen. It could be given shortly after en-

trance, in connection with the introductory education course, usually educational psychology.

3. *Personality tests* (6, 121, 122, 123).—Standardized tests should, so far as possible, take the place of rating scales. Institutions would have to decide what characteristics might most advantageously be tested, such, for example, as emotional adjustment, ascendance-submission, fair-mindedness, and socio-economic status. Whatever tests are chosen could probably best be given in connection with the course in educational psychology; and they should be used as diagnostic instruments in individual cases; any conditions which might interfere with teaching success could thus be isolated, and corrected if possible.

4. *Comprehensive examinations*.¹—Of major importance in the program would be the comprehensive examinations which should be three in number, the first, (a) given upon entrance and repeated at the end of the period the student is in residence, the other two, (b) and (c), only at the end.

a) *High-school achievement and educational aptitude tests*.—Whether or not it is considered advisable, in the first examination, to give tests in the natural sciences and foreign languages, there should certainly be three basic sections, i.e., *English usage* (spelling, punctuation, vocabulary, and correct grammatical forms), *arithmetic fundamentals*, and *social science*. The first two are tool subjects in which students are notoriously weak, and their weakness hampers them in their college work; the latter is what might be called "background" for the teacher's work. All three tests, when first given, would point the way for remedial work when necessary, and an objective standard of achievement could be set for graduation or certification.

b) *Professional-knowledge test*.²—A comprehensive examination, a major portion of which should be standardized, covering and correlating the "courses" or useful knowledge in the field of education, should be given toward the end of the student's residence.

c) *Academic-knowledge test*.—Another comprehensive examination should be required in the field in which the candidate expects to teach (major subject) and probably one in his "minor" as well.

5. *Professional rating*.—With the foregoing items taken care of, the rating scale can be reduced to a minimum. Some investigators may wish to include several items; I would suggest but four: (a) *appearance*, (b) *culture or background* (which, however, might be found to be measured by the English and the socio-economic status test), (c) *initiative*, and (d) *probable success as a teacher*. The scales should, of course, be drawn up in proper form, probably with as many as ten carefully delineated steps.

¹ Dr. Edward S. Jones is directing a study of comprehensive examinations for the Association of American Colleges under a grant from the General Education Board.

² See Bibliography (84, 85, 86) for summaries of the work on achievement tests; (11, 105, 141) for tests in psychology; (39, 126, 144) in educational psychology; and (92) for studies of objective testing on the higher levels.

They should be used as soon as the various instructors can form valid judgments, probably at the end of the first semester of the student's residence at the institution, and should, like the *health rating* and the *achievement tests*, be used as a basis for remedial treatment. The scale should then be employed a second time toward the close of the student's residence, with ratings, so far as possible, by the same instructors who made the first judgments.

6. *Marks*.—It is a question how much attention should be given to instructors' marks in academic and professional subjects. Some dictator dean might be successful in requiring, for the purposes of the experiment, that all students be *ranked* in the different courses, providing the courses continue in their classic form. Certainly a rating of the candidate's *teaching skill* by the critic teacher, supervisor, director of teacher-training, etc., should be used in forming an estimate of probable teaching success, perhaps in connection with the returns from the *professional rating* scale.

These six points constitute a program which seems in no way impracticable; indeed, many institutions already have schemes set up embodying many of its features. It would require that some of the time now spent in random, overlapping courses be given to the labors of research; and, if this is done, the cost might not be prohibitive. The plan of examining is monumental in comparison with that employed by Krüsi's examiners; but so, too, is the professional preparation now generally required. If put into effect, and carried through into a series of follow-up studies in the field, made on the same individuals, we might find out what we are actually teaching our students and just how effective our instruction is. Curricular changes might be expected to follow.

CHAPTER VIII

THE RELATIVE VALUE OF SCIENCE AND PHILOSOPHY IN APPRAISAL

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I

The specific question to which this chapter is addressed is: "To what extent should educational policies and procedures be appraised by scientific methods?" This is a special application of the more general question: "To what extent is it desirable and possible for school administrators to use scientific methods and the results of scientific inquiries in the determination of policies and procedures?" There are two further questions involved here, one theoretical and the other practical. The theoretical question is: "Are there or are there not some really vital educational problems which cannot in the nature of the case ever be adequately handled by scientific methods?" The practical question is: "How far can the school administrator trust science, or what help can be derived from science, in the determination of policies and procedures?"

As is usually the case, the practical question has precipitated the theoretical one. There appears to be a feeling in some quarters that scientific education has been oversold to school executives. It is pointed out that the very terms "science" and "scientific" enjoy so much prestige that almost any scheme or plan can be put across provided it bears the proper label. This is not all. Many of the younger school superintendents, principals, and teachers who are fresh from the teachers colleges are imbued with the idea that, above everything else, they must be, or pretend to be, scientific. It is claimed that this urge to the superscientific which demands a scientific test of all educational procedures is working positive harm to the cause and that the time has come to call science to account.

Perhaps this is an overstatement of the case, and it should be said that those who feel that education has been overstrained in the

attempt to put it on the scientific bandwagon are not opposed to science as such. They feel that science has a very definite place in education, but that place should be clearly defined and, further, that science should be put in its place and kept there. What then *is* the place of science in education, and particularly what is the place of educational psychology? This is the theoretical question mentioned above.

II

When one sets out to answer this question he begins usually by drawing some sort of distinction between science and philosophy. Some of these alleged antitheses are time-worn and obvious; others are labored and subtle. A museum collection of them is interesting partly because it reveals the diversity of opinion which exists and partly because it shows how universal the desire is to find a distinction. The following catalogue does not claim to be complete, but only to illustrate the more common types: philosophy (P) is arm-chair and impractical, science (S) is experimental and practical; P is formal and abstract, S is dynamic and concrete; P is synthetic, S is analytic; P explains, S discovers; P establishes, S proves; P deals with values, S with facts; P determines ends, S means; P what is desirable, S what is possible; P is subjective and personal, S is objective and impersonal. Some of the more subtle distinctions are that P is immediate, S is delayed; P proceeds from fixed premises, S from varied premises; P ends in disagreement, S in agreement.

These, of course, are nothing more than catch phrases which label conceptual contrasts. All who draw these antitheses say that there is no hard and fast boundary between science and philosophy. There is, on the other hand, much overlapping. Nearly all the articles written on this subject begin by drawing distinctions and end by saying that, after all, there is no real conflict here—that both science and philosophy are needed in education, that they supplement each other, and so on.

Concerning the alleged distinctions, there are two interesting observations. First, there is unanimous agreement that differences do exist between science and philosophy; second, there is unanimous disagreement as to what these differences are. Practically every one of the foregoing antitheses have been challenged and many of them

completely demolished. The innocent bystander is perplexed, and made to wonder if there are any really valid differences, especially since all the contestants come around in the end and say there are no sharp lines here anyway; that, after all, there is no conflict.

The disagreement is due in no small part to the differences in meaning attached to the terms "science" and "philosophy." Science in its generic sense means "to know." Thus, broadly speaking, any quest after knowledge is science. Philosophy means "love of wisdom." Thus, if we go back to the root derivations, both mean the same thing, the only difference being that one is derived from the Latin and the other from the Greek. Philological research, however, might reveal genuine difference in the root meanings.

But apart from this, philosophy has many meanings because there are many kinds. There are included in philosophy such disciplines as epistemology, metaphysics, and formal logic which are quite different from pragmatism. Thus, when one refers to "philosophy," it is important to designate what school of thought one has in mind. The same is true to a lesser degree in science. Science sometimes refers to a point of view, or again to a method, and so on. There is, no doubt, a real difference between metaphysics and laboratory techniques, which may be exactly what some one has in mind when contrasting philosophy with science.

The indoor sport of contrasting science and philosophy is a very complex game, the rules of which have not yet been written. A few illustrations of how the game is played will be illuminating. The educational philosophers have themselves challenged some of the older and more common antitheses and, having succeeded in demolishing them, they have then gone to work and set up newer and more subtle distinctions. These in turn have been challenged by the educational scientists who, after dealing with the philosopher's distinctions, have formulated still others. And so it goes. For example, Professor Kilpatrick, who has given considerable thought to this topic and who has recently written three articles (89, 90, 91) on it, insists that modern philosophy is not an arm-chair, impractical, formal, cold, and abstract academic discipline which deals with highly abstruse and speculative questions such as the nature of reality and the limits of knowledge. Epistemology and metaphysics occupy

only a part and a very limited part of the educational philosopher's time. The contrasts between science and philosophy which make science practical and philosophy impractical and divorced from the problems of life are really contrasts between science and epistemology or science and metaphysics.

Professor Kilpatrick goes very much farther and asserts that the type of pragmatic philosophy which deals with problems of education is really much more practical and concrete than science. It is science that is abstract, and not philosophy. The major point in all of his recent writings is that there are certain types of problems in education, and in other walks of life, with which philosophy is better prepared to deal than science. He goes on to show how most problems of educational policy and procedure are usually very complex. A decision or solution rests on many factors. Some of these factors can be dealt with satisfactorily; others cannot. For example, on what basis should students be selected for admission to normal schools? The answer to this question requires the assembling and weighing of much evidence. First, the principal or responsible authority can go on admitting students as in the past, or he can shift the base. The problem arises, as usual, out of a felt need. What help can he get from science, what from philosophy? Is there a way of going at his problem that is characteristically scientific and another way that is characteristically philosophical? Professor Kilpatrick would say there is. He would say that if the principal acted immediately by gathering in all available evidence, considering not only facts but opinions, beliefs, prejudices, and by spreading all these pertinent bits of evidence out before him, giving each its due weight, and then piecing them together into an integrated pattern of thought which contains the final answer, that would be the philosophical method of dealing with such a problem. On the other hand, the scientific way of going about it would be something like this: First, define, as specifically as possible and in as quantitative terms as possible, the criteria or the results to be achieved by this teacher training. Second, find what factors in the pre-normal-school experience of the candidate correlate highest with the criteria. Then weight these facts so as to give the highest correlation. That set of factors which when properly weighted gives the highest correlation with the de-

sired results is the one on which criteria should be based. The ends sought in both cases are the same—both are interested in achieving the very best product. Both agree that the product produced is in part determined by the type of student who is admitted. But the ways of finding out what type of raw material will give the best results in the end are different. Both give different weights or values to different variables or factors. But the scientific method usually weights them with reference to the one criteria—namely, the defined desirable product. The philosophic method reserves the right to weight them also in respect to other criteria. For example, public opinion, or the supply and demand of teachers. Science could do this if it were known in advance that there is a multiple criterion involved. It is said that science considers only the measurable factors, while philosophy deals with all factors. Science selects those which it can handle by its methods and techniques, while philosophy is not so limited.

Philosophy and science, according to Professor Kilpatrick, ask different questions. Philosophy asks: "What shall I do?" Science asks: "If I do this, what will happen?" Between these two questions Professor Kilpatrick sees wide and significant differences. He mentions three such differences:

1. The S question deals with only a part of the total situation—its consequences. Science is interested in predicting one state of affairs from another. In so doing, it deals with sequences which become cut-loose or abstracted out of the total concrete situation. The P question, on the other hand, faces the entire situation and contemplates all its aspects, including a variety of possible consequences. The type of conclusion which is reached is very specific and holds only then and there in that particular situation. The type of conclusion to which the S question leads holds independently of time and space. "The actual educational task is thus always concerned with the P-type problem, either to ask it or, having asked and answered it, to administer or execute the answer. And in education both this and the executing must go on in terms of the whole situation in a sense never true of the S-type problem or procedure" (91).

2. The S question rigidly rules out all personal wishes and prejudices of the investigator. If the results are to be checked by

other investigators, which is the genius of science, then personal factors must be kept out. In P, the opposite is the case. "P then differs from S in that wishes exactly constitute the decisive factors in the decision" (91, p. 103).

3. S and P have different techniques for dealing with their problems. S has a required procedure of control, precision, checking, etc., commonly known as the "scientific method." P, on the other hand, has a different technique. There are three essential levels or steps in this technique: (a) the process of discriminating, sorting, and evaluating the raw data which are facts, values, wishes, interests, and the like; (b) "certain strategic conceptions for picking out values or groups of values which experience has shown to have outstanding significance in conduct or policy decisions" (91, p. 109); (c) a unified point of view by which a complete interpretation may be effected.

These distinctions between the typically scientific and the typically philosophical question point to the conclusion that there are certain types of problems in life and in education which philosophy is peculiarly equipped to handle. In another article Professor Kilpatrick specified four major areas as the province of philosophy (90): first, questions regarding the good life or desirable standards of conduct; second, questions of choice among persons or personal relations; third, questions of the application of abstract principles or data; and fourth, questions of criteria of assumptions. These are typical of the kinds of problems that science cannot handle without aid from philosophy. Professor Kilpatrick does not say that science should keep off these problems but that science is insufficient to deal adequately with them.

Professor Kilpatrick insists all along that there is no conflict between science and philosophy; education needs both, they are complementary, neither can take the place of the other. This is not only true now but will always be true. "Within education, science will extend itself more and more, and will render greater and greater service; but always, so long as this world stands, there will be problems, say regions of problems, with which the processes of 'exact' science are insufficient to cope. With such, what is here called philosophizing is forever essential."

So it becomes a matter of prophecy. The history of science clearly

shows that it has gradually been making inroads on the provinces of philosophy and conquering province after province. But Professor Kilpatrick thinks that the conquest will never be complete. The very nature of the universe prevents it.

Now Professor Truman Kelley (87) points out that science has already entered the four provinces which Professor Kilpatrick has marked out as the happy hunting ground of philosophy. We shall not review Kelley's arguments here, but merely state that he shows how science—and even exact science—has not only a proper place but a necessary place in each of these four areas of problems. But nowhere does he say that science alone is sufficient to deal with these problems. Its sufficiency, however, cannot be determined by opinion. To say that it is now insufficient is one thing, but to say that it is *forever* insufficient is quite another. Who knows what the future may bring forth?

Now we get along toward the real crux of the argument. The question apparently is not whether science is now sufficient or insufficient to deal with all educational problems. There is no argument here. But whether science can ever become wholly sufficient is another question and one in which the present writer is not interested. Elbert Hubbard is reported to have said, "The expert on the future life does not know much about this one."

The other issue is that of priority. Kilpatrick holds that philosophy may claim priority in the four fields, receiving such help as it can from science. Kelley takes the position that "the vital problems of education as well as all others are solved by research." He denies priority to philosophy in education. That is the real issue.

After pointing out that Professor Kilpatrick's distinction between science and philosophy does not give philosophy priority in these four fields, which is Kilpatrick's real contention, he then states what seems to him to be the difference. The criterion of philosophy is coherence of thought or internal consistency. Consequence must inevitably follow from premise. The criterion of scientific thinking is conformity of the premise with experience. But premises never conform with experience exactly. This is the root of the difference. Science regards its premises as forever changing. The scientist thinks in terms of probabilities in reference to his premises. Thus the

difference between a philosopher and scientist is the way he thinks. The mental process of the scientist terminates not in a generalization or statement of policy, but in a plan for a crucial experiment. Einstein never did any experimental physics, yet he is regarded as the world's greatest scientist. Why? Because he insists on experimental tests of his conclusions. Sir James Jeans, an experimental physicist, speculates on the death of the universe. Here no test is possible. This is philosophy. To quote Kelley:

The point is that philosophy is not solving problems that science cannot handle. She is merely muddying the water if she attempts to treat them as solely within her province. That the thought process of the philosopher terminates in a mental-picture-felt-to-be-complete, and that of the scientist in a still-to-be-performed-crucial-experimental-test is the normal consequence of the mind which on the one hand is seeking unity of outlook, and on the other hand, uniformity of thought with experience [87, p. 129].

Philosophy is then the forerunner of science. It functions as best it can where scientific methods are not yet available. The practical problems of education with which science cannot now adequately deal are truly legion. Something must be done. Schools cannot wait for science. Temporary rules and tentative policies must be set up. There are, no doubt, many practical and useful techniques for doing this which are not scientific. But these should be regarded as tentative and subject to change by science.

No reply to Professor Kelley's criticism has come from Professor Kilpatrick, and no attempt is here made even to guess at what that reply might be. Yet one cannot help wondering whether, after all, Professor Kelley is not really attacking a type of philosophy which is essentially different from the pragmatism of Dewey and Kilpatrick. Pragmatism is a type of philosophy which does question its premises, leaving them always open not only to the test of experience but also to that of experiment. The writer wonders if pragmatic philosophers would admit that their thinking "terminates in a mental-picture-felt-to-be-complete." Would they admit the charge made by Kelley that their thinking stops short before it reaches the final stage of experimental verification in Dewey's famous steps in the thought process? Professor Kelley (88, p. 299) says:

The first five steps [in Dewey's list of steps in "How We Think"] are common to philosophy and science, but the sixth step, experimental verification, requires appreciable time not available to one who must act. Science continues and carries through the complete act of thought; philosophy does not.

A little farther on he says:

We seem to have reached the conclusion that the only solution to the urgent novel problem is the philosophic one, and that it is no solution because its fitness is and must remain unknown until it is too late to alter it, i.e., until consequences, good or evil, have actually followed. In the strictly logical sense that every present moment is a novel one and that something takes place in reaching the next moment, I believe that this is true, but do not draw the important conclusion that therefore, in immediate problems, we should not turn to science, but resign ourselves to unverified speculations of philosophy.

Do pragmatic philosophers actually draw this conclusion? The answer is, some do and some do not.

But this chapter is not an apology for philosophy nor a defense of science. Our present aim is to find if there are any theoretical distinctions between science and philosophy which will stand the test of rigorous criticism. Professor F. N. Freeman (51) plays the game as others do. He first points out that the distinctions drawn by philosophers are untenable and then draws one of his own. He discusses four concepts of philosophy and how each is supposed to differ from science. Concerning the concept of philosophy as a settler of practical issues he says:

Philosophy, according to this usage, means weighing and balancing all the considerations on one side or the other of a practical issue and then throwing the weight of one's decision on the side which presents the greater advantages. The philosopher, according to this view, is not the absent-minded recluse sitting in his study and pondering the ultimate nature of the universe. The philosopher is rather the practical man of affairs; the administrator, a person of judgment and good sense who is able to make the right decision at the right time. Lying back of this notion, apparently, is the view that the acquirement of an adequate philosophy will in some way give the individual such ability to weigh all the values of life that when a practical issue confronts him he will be able to refer to these values and thus find the decision as good as made for him. This is an alluring prospect, but it hardly seems borne out by the facts.

Concerning the concept of philosophy as one's personal and intimate reaction to life which makes philosophy highly subjective,

placing it in a category with taste which permits no ground for discussion or agreement, he says:

This argument proves rather too much. If philosophy consists in attitudes which are so inaccessible to scientific study and are so subjective as to necessitate mere acceptance without evaluation by another person, this type of philosophy would deny the very root idea of philosophy itself, which is reasoned discussion. Such attitudes can form the basis for neither philosophy nor education. A category from which there is no appeal, either by scientific study or by reasoned discussion, could never serve as the basis for educational theory.

Then he takes up the distinction between philosophy and science which makes philosophy the determiner of ends or values, and science the determiner of means, and points out that this distinction has been once and for all demolished by Dewey himself. Professor Freeman then states his own position. The following extracts from his article are worth quoting:

The point of view here suggested is that philosophical reflection serves provisionally as a means of evaluating procedures, but that it must give place to science as rapidly as science can perfect its methods of analysis. The values which are set up by this analysis must justify themselves in experience instead of being justified on the criterion of internal consistency, logical coherence or the appeal to individual preferences. The values must be regarded as hypothetical rather than as ultimate. The variations in values which are found to obtain in the societies of different peoples must be evaluated in terms of their outcomes in the lives of these peoples. The exponent of science in education can well afford to be modest concerning its past achievements and even concerning the techniques which have been developed up to the present time. The contention is not that science has yet established a basis for all the procedures of education or even for a considerable part of them. For the length of time it has been in operation, the scientific method has given a fair account of itself. The main contention of this paper is that it is the scientific method rather than the philosophical method which offers the possibility of continuous and sure advancement toward a more and more adequate solution of the problems of education. When science has once conquered a bit of territory, that territory is acquired in permanent possession. Mistaken theories may be adopted which are later shown to be unfounded, but in general science moves steadily onward.

Genuine philosophical speculation has its own canons of criticism. It may, within its own sphere, be as rigid and as careful as is scientific investigation. Those who pursue philosophical speculation, however, recognize the limitations of its sphere. They do not undertake to make it do a work for which it is not fitted, namely, to determine the issues of practical living. One who is not interested in the pursuit of speculative philosophy may adopt pragmatism, which

eschews speculative problems and busies itself with the problems of the practical living. Such a person must realize, if he thinks his way to the end, that the ultimate goal of such a procedure is a wholehearted adoption of the scientific method. He can not stop at any half-way point. If he does, he abandons the canons of one rigid discipline without taking over the canons of the other discipline which properly takes its place.

Professor Freeman has been quoted at length because his conclusions seem so sensible and sound. Between that type of speculative philosophy which deals with such problems as the nature and existence of God, the possibilities of freedom, the nature of reality, and the limits of knowledge, and the science which deals with the concrete problems of life, there is a great gulf fixed. But between pragmatic educational philosophy and scientific educational psychology there are, in fact, no distinctions which are in the nature of the case theoretically necessary. The practical differences are not in the way the pragmatic educational philosophers and the scientific educational psychologists think, or in the logic of their methods, or in the data with which they work or the types of questions they seek to answer, but only in the way they spend their time. Such differences, I submit, can be ascertained best either by case histories or by sending out a questionnaire!

III

We come at last to the practical question, which is: "What help can the school administrator receive from science and particularly from educational psychology in the determining of policies and procedures?" To what extent can he use scientific methods in appraising his policies? Professor Kilpatrick (91, p. 114) has an answer to this question. Here it is:

But as to using techniques of measurement and the like for such testing, two cases present themselves. Wherever, as in science, the generalization is in essence a simple prophecy it must stand or fall by its success in prophesying. For all such, "verification" is an appropriate term and measurement (when available) is a proper means of testing. The situation, however, is different where, as with decisions on appropriate conduct or policy, we face not a simple prophecy but instead an aim or chosen end, an effectual and final wish in the light of foreseeable consequences. For the testing of these, "verifications" is not an appropriate term and techniques of measurement are not in themselves adequate. In such cases, the function of measurement is not to supplant or to

supply decisions, but to furnish, regarding the working of the policy under review, more and better data, in the light of which a fresh and better decision can be made. The testing of decisions of policy or conduct is indeed by trial, but the trial and its results demand an appraisal which is in kind simply a choosing *de novo* of what now to wish. So far as at present appears, the testing of policies as such lies forever beyond any mere process of measuring.

Once again we have a dichotomy. There is one class of generalization or policies which may be tested by scientific technique, namely, measurement. These are of the nature of prophecies and rest on the truth or falsity of whether or not the expected results follow from the known conditions. The other class of policies cannot be verified by science, namely, measurement, because they rest not on the truth or falsity of a causal relativity but on some notion of what is right or just or proper or fitting.

Let us take a concrete example. Suppose a principal of a normal school wishes to appraise his policy concerning the admission of students. If his policy is to admit only those students who, upon graduation, will become successful teachers, it can be verified, scientifically, provided he can secure adequate measures of teaching success. This is a case of prophecy. When a student is admitted, a forecast is made concerning her probable future success. Those who have "promise" are admitted, those who lack "promise" are rejected. But suppose there are other factors in the situation—race, for example. Assume that among the applicants there are large percentages of Negroes, Jews, Italians, and other foreign-born groups. Suppose there are prejudices in the community against these races, so that it is hard to place teachers who are not Nordics. Suppose, further, that if too many non-Nordics were admitted, the Nordics would no longer apply. Can the principal go on admitting all who apply regardless of race, age, or other factors if only they pass the prophecy test? Is this a case where the prophecy must be based on something like fitness, or justice, or propriety? It would seem so. If so, then Professor Kilpatrick would say that the policy concerning the proportions of different races to be admitted cannot be determined nor appraised by science.

Perhaps this is not a good illustration because such a policy would have to be based either on prophecy or on personal prejudices. The

principal could determine, by scientific methods, about how many Negro teachers could be placed; he could, if techniques were available, forecast what success to expect of Negro teachers in either white or colored schools; he could prophesy how many of the Negro and other races he could admit before the Nordics would begin to leave, and how many would leave; he could prophesy the effect the policy would have on his own job—in fact, he could make as many prophecies as he would need in order to determine his policies. Of course, the probable error of these prophecies would not be equal, but they would be forecasts, nevertheless. Any policy, therefore, that is based on one or more prophecies can be appraised by scientific methods.

But suppose the policy is based on prejudice. Suppose the principal says: "I don't like Negroes and my white constituency doesn't like them, hence I will not admit them or at least not many." Or suppose he says: "I will admit only 10 per cent of Negroes because that *seems to me* to be about the *appropriate* number. It wouldn't be *fitting* or *proper* to admit more." What can science do to appraise this policy? Professor Kilpatrick is right, it can do nothing. But what a policy! The very foundation of it removes it from the realm of criticism. It cannot be appraised by either science or philosophy or anything else.

I submit that any policy can be appraised by scientific methods provided it is clearly defined and provided, further, that it is not based entirely on the personal taste of the administrator. In all policies, there is an element of prophecy which can be measured when techniques are available. If there are other non-prophetic elements present, they, too, can be scientifically appraised provided they are defined. I see no justification for confining science to measurement alone. Values, interests, desires, and even prejudices are *facts* to the scientist when they are clearly stated. If there is a community prejudice against Negroes, the extent of that prejudice can be systematically estimated, if not accurately measured.

Professor Kilpatrick admits scientific evidence as data for those policy determinations which are the provinces of philosophy. "Measurement when available is an appropriate help for getting more accurate data to use in a fresh appraisal, but the re-appraisal

proceeds as do all determinations of policy." Then follows this very illuminating footnote (91, p. 113):

Some may instance cases where the measured results sufficed to lead at once to a choice between questions of policy. There is no doubt of such cases, but these are "the exceptions that prove the rule." The new found or more accurate data, simply furnish the basis for a more easy choice. This is exactly how science gets in its proper work, not by superseding or supplying conduct or policy decisions, but by supplying better data on the basis of which better decisions can be made.

This, of course, is a reaffirmation of the means-ends, facts-value, possible-desirable, antitheses between science and philosophy. Once these antitheses are granted, it follows that science cannot determine policies, nor appraise them. Its "proper work" is to supply data to philosophy. But the foregoing antitheses are not logically valid in the sense that they set pragmatic philosophy apart from science. The two are inseparable, and there is no special field in which philosophy can set up shop and claim supremacy over science. Science cannot be reduced to mere measurement, nor to mere fact-finding.

There is a difference between data gathered systematically and observations made casually or between prejudice recognized as prejudice, and prejudice confused with ideas, opinions, and overt behavior. There is good science and poor science, just as there is good philosophy and bad philosophy. But to contrast poor specimens of science with good examples of philosophy, or vice versa, is not playing the game fairly. Or to limit science arbitrarily to mere "techniques" and contrast it with a policy determining, problem-solving philosophy, is not playing the game.

How far can school administrators trust science in the appraisal of their policies and procedures? To what extent can they rely on educational psychology as a scientific appraiser? It is not the purpose of this chapter to summarize or recount the progress that has been made in educational psychology. Considering the length of time it has been in operation, much has been done. It has influenced, and in many instances has been the determining factor in forming, many educational policies and school procedures. For example, it has had a marked influence in the determination of policies concerning

the identification and treatment of exceptional children, and particularly backward and handicapped children. It has played a prominent part in the development of kindergartens and nursery schools. In policies concerning curriculum construction, textbook writing, teaching methods, educational and vocational guidance, and the grouping of children, educational psychology has had an important influence.

It does not claim to have been the sole determiner of any of these policies or procedures. But it has insisted, and still insists, that every policy and practice must be constantly subjected to the rigorous tests of experiment. It is not enough to say that all policies must be tested by the way they work out in practice. The pragmatic test is good as far as it goes, but it does not carry us far enough. There are many policies which satisfy the tests of practical experience which would not stand under the test of experiment. Science insists on experimental verification which need not be conceived narrowly in the sense of measurement. Science does not always demand measurement, but it does demand that all policies be appraised in the light of existing data. It goes even farther and criticizes the data from the point of view of their sufficiency, reliability, and relevancy. The scientist does not hesitate to throw out all unreliable and irrelevant facts. If the evidence is incomplete, he knows where and why it is thus, and lays plans to complete it.

Science attempts to be systematic and critical not only in the accumulation and weighing of evidence but also in the weighting of it. Ideally, the factors that enter into the determination of any policy should be weighted by some plan which is independent of the prejudice of the thinker. An example is the multiple-correlation technique of statistics which is highly specialized and applies only to certain forms of quantitative data. What is needed is some device by which a variety of qualitative and quantitative data can be weighted to a multiple criterion. In dealing with complex problems in education which require the critical evaluation and weighting of a variety of data, the best we can now do is to philosophize, that is, use our best judgment, until more systematic and more adequate plans of weighting can be devised.

In the end, it all comes down to a matter of attitude or point of

view. It appears that some men are more scientifically minded than others and some are more philosophically minded than others. From the printed evidence contained in their writings the philosophically minded educators insist on drawing distinctions between science and philosophy with a view to staking out a special field or claim for philosophy. Their favorite pasture is the field of values, where philosophy claims prior rights over science. Science may come in and help by gathering facts, giving tests, and doing other useful tasks, but philosophy determines the policies and procedures. The very fact that we live in a contingent universe where every situation is a novel one, means that science cannot ever become the major appraiser of educational policies, but most always plays the second fiddle to philosophy.

The scientifically minded educator has a different point of view. If he happens to be narrow and too impressed with his science, he is likely to say that about all philosophy does is to fiddle. But if he is more broad-minded, he will say that most educational policies are, as a matter of fact, determined by philosophizing more than by strictly scientific methods. But this does not mean that there are theoretically necessary contrasts between science and pragmatic philosophy either in problems, data, methods, or thought processes. He regards educational policies as always tentative and subject to revision in the light of new and better evidence which must be carefully criticized as to its reliability and relevancy. He is not satisfied with the pragmatic test alone but insists that all policies should, as far as possible, be experimentally verified by the most rigid and systematic tests.

CHAPTER IX

EDUCATIONAL PSYCHOLOGY IN RELATION TO CERTIFICATION REQUIREMENTS

G. M. Ruch, University of California

INTRODUCTION

The question of the place of educational psychology in the list of requirements for teaching credentials virtually reduces to the problem whether this subject should be taught at all, since, as yet, applied phases of psychology have hardly won a place among those disciplines supposedly affording "general culture."

There has been comparatively little tendency to question the value of either general psychology or educational psychology in the professional preparation of teachers and administrators. To be sure, the sporadic doubter has raised his voice of protest—but this is an era of challenges in all matters of the curriculum. Professor Thomas Alexander is entitled to the toga of the disputers, if he is quoted correctly, when he says: "I can think of *only one item* which has been discovered in the last twenty years that has been contributed by psychology. Every worthwhile suggestion contained in a book on psychology has been known to the human race since long before the study of psychology was organized"¹ (*italics mine*). What this *one item* is, Professor Alexander neglects to inform us. We can only trust that his memory does not fail him as did that of the one school boy who knew what electricity is! There is always a risk that valuable information locked in the neurones of a single individual may, through the vicissitudes of mortal existence, be lost for all time.

IS EDUCATIONAL PSYCHOLOGY OF VALUE TO TEACHERS?

One of the least secure bases for any school subject is that its place in the curriculum rests purely on opinion. But this is the case in almost every instance. The security varies with the worth of the opinion.

¹ Quoted from the *New York Herald Tribune* in the *Teachers College Record* (1).

It is not intended that this yearbook review in detail the many investigations related to its several topics. Nevertheless, in connection with the question of the worth of opinion, perhaps the best evidence is afforded by teachers who, after some years of teaching, look back on the studies pursued in their training institutions with a critical and comparative eye. Among others, Obrien (138) and Madsen (116) have gathered such data. A few selected results are given here. Obrien questioned 114 alumni of the University of Kansas, all of whom had had teaching experience. His tabulation is given in Table I with some additions.

Educational psychology appears to stand first in value in actual teaching, especially when tests and measurements are also con-

TABLE I

Number Checking	Which Units Have You Found of Greatest Value?	Which Units Should Have More Time?	Which Units Should Have Less Time?
Educational psychology.....	67	54	2 (6)*
Educational measurements.....	51	42	14 (4)
Educational sociology.....	47	10	12 (6)
High school administration.....	35	28	8 (8)
History of education.....	7	3	28 (8)

* This column gives the time in weeks given to the course.

sidered. The latter topics have, perhaps, no inherently closer connection with educational psychology than with certain other courses; historical development and tradition have been chiefly responsible for this linkage. Obrien's findings, moreover, show that the order of utility is roughly the inverse of the time allowances in practice.

Madsen's results for graduates of the Lewiston (Idaho) State Normal School are almost exactly parallel except that practice teaching, as might logically be expected, ranks first. Again educational psychology and measurement are reported as of high value to the teacher. His principal findings follow:

Subject	Total Times Mentioned
Observation and practice teaching.....	77
Educational measurements.....	69
Educational psychology I.....	68
Educational psychology II.....	67
Rudiments of art.....	49

Subject	Total Times Mentioned
Technique of teaching.....	44
School management and law.....	35
Rudiments of music.....	33
Principles of teaching.....	32
School and community hygiene.....	17
Educational sociology.....	6
History of education.....	4

These two studies are typical of others which might be cited. The agreement is striking; and, although based upon subjective opinion, the opinion of classroom teachers may be held to place high against the criterion of competency. In considerable measure such studies justify the almost universal practice of requiring educational psychology of prospective teachers. French, in 1929, found educational psychology to be offered in 96 per cent of teacher-training institutions. General psychology stood second, with 86 per cent, followed by history of education and methods with 85 and 77 per cent, respectively (52).

Supervised teaching excepted, educational psychology (with or without the inclusion of tests and measurements) appears to be the most valuable single unit in our teacher-training problem, if we may judge by such criteria as (a) testimony of teachers in service and (b) frequency of curricular offering. In the absence of more basic data, educational psychology should be continued as a requirement for certification by state departments of education, the evidence indicating further that the relative time allotment may well be increased. Educational measurement should be incorporated into the course in educational psychology or made a requirement as a separate course.

THE PROPER CONTENT OF EDUCATIONAL PSYCHOLOGY

Educational psychology usually follows a prerequisite course in general psychology. It must be admitted that there are some unsolved problems of overlapping between these two offerings which need consideration. Similar overlapping of educational psychology and other professional courses also exists. This can easily be verified by examination of certain popular textbooks in secondary education, principles of education, etc. Overlapping is, per se, not always objec-

tionable. Repetition, especially when accompanied by varied applications, is one of the most powerful aids to mastery of principles. Nevertheless, the repetition must be restricted to those selected topics of greatest utility. French (52) claims that the overlapping of general and educational psychology was more evident than for any other pair of courses, philosophy of education and educational sociology presenting a similar situation. Nevertheless, that writer holds that the emphasis on topics is markedly different for general and for educational psychology, these subjects showing the most sharply differentiated nucleus of content found among professional courses in education. Part of the difficulty in the overlapping of general psychology and educational psychology arises from departmental organization within our universities. Schools like Ohio State University, and others with combined departments of education and psychology, should have a much freer hand in eliminating overlapping. The available evidence indicates that this is true.

That overlapping need not exist was shown by Hunsicker (77), who found by test that no bona fide beginner in a course in educational measurements reached the lowest score earned by the group finishing the course.

The question of the content of the course in educational psychology is far too intricate and extensive for the present treatment. Unpublished studies by Miss Eura Kester and the writer show clearly that recent significant studies are crowded out by those of early origin. Bryan and Harter on the telegraph language appears ten times as often as more significant work of the German Gestalt school. There can be no quarrel with maze-running, ball-tossing, cancellation of *a*'s, and nonsense syllables as sources of evidence on learning; but such experiments must not crowd from the pages of our educational psychologies the recent experimental studies on the teaching and learning of the school subjects as reported in many of the various yearbooks of the past ten years. The only recurring criticism of present courses in educational psychology, as far as the writer is aware, centers about the inability of the novice teacher to bridge the gap between psychological theories and generalizations to the concrete situations of classroom teachers. This gap will be lessened by more attention to investigations of the school subjects.

Another suggestion as to proper content is offered. Among the 1,001 "activities" reported by Charters and Waples in the *Commonwealth Teacher-Training Study* (27) are scores or hundreds of teaching situations, the advance preparation for which is within the province of the course in educational psychology. Whatever be the limitations of the activity-analysis method as a fundamental basis for curriculum construction, surely the acts of teachers in the conduct of the classroom complex offer a surer guide to the content of the course in educational psychology for the prospective teacher than does the unaided opinion of the individual textbook writer following, for the most part, the path beaten by the "best-sellers" which have preceded him.

THE PROFESSIONAL COURSES LEADING TO CERTIFICATION

In the concluding section of this chapter the writer prefers to view the problem of educational psychology in relation to certification in a broad fashion. Present certificates or teaching credentials are awarded upon completion of about twelve to twenty semester hours of such courses as: practice teaching, history of education, educational psychology, principles of teaching, secondary education, etc. Each such course has come into existence under the whip of real or fancied needs. There is more than a little competition among these courses for favored positions in the number of hours of credit to be granted. Each course is taught by a specialist, in the larger schools, who may know little of, or care little for, the other offerings in the training program. Some passing evidence was given in the first part of the chapter to the effect that teachers in service do not see "eye to eye" with those who divide up the field of education into these special compartments.

Present courses in education encourage both overlapping and unbalanced emphasis through the manifold and conflicting lines of division. First comes division into logical units of content, history, principles, psychology, etc. Across these cut the lines of elementary, junior high school, secondary, and higher education. The special interests of the classroom teacher, the supervisor, and the administrator call for still further sectioning of the field. Then, in addition to all the foregoing, there are the more highly specialized divisions

like vocational education, counseling, special methods, child study—in variety almost without limit. If the department prescribes wisely or the student elects intelligently, it is possible that a reasonably well-balanced program may lead to certification. At the same time it is evident that this fractioning has come about largely on historical grounds, and that at no time have our teacher-training curricula been designed from the ground up as a unified collection of the information and skills most likely to guarantee success in actual teaching.

As one examines the list of about one thousand activities reported by teachers in the Charters and Waples study, it is apparent that some of these are definitely planned for in certain of our existing courses. The materials for meeting other of the situations listed must be assembled from several different courses and the fusions effected by the teacher. Many of the activities reported do not lend themselves to ready classification under any of the existing courses in our schools of education. We need not assume that the *Commonwealth Teacher-Training Study* has assembled *all* of the essential skills, or even the majority of them. Nor does reference to such a list of discrete activities imply that the writer holds to a non-focal view which excludes the concept of generalized skills, principles, attitudes, and ideals. It is the present intention merely to suggest that the Commonwealth study views the teacher at work in the classroom and hence represents an approximation to the technique and spirit of investigations which might lead to a more valuable program of teacher-training than one which has come down historically. How often has anyone viewed the content of the subject matter leading to certification through other than the eyes of these half dozen or ten specialized courses prescribed by state departments of education, or otherwise? A mere collection of courses, even granting that they be worth-while courses individually, will never be a wholly satisfactory solution of the problem of certification.

Educational psychology, although an essential unit in the teacher-training program, holds no unique place not duplicated by other professional courses. Its contribution, judged on logical grounds, may be more direct and more extensive than that of many other courses. Several of the studies cited above do suggest that its value

to the teacher is greater than its time allotment in our present program indicates. However, such considerations are really beside the point in setting up a curriculum based upon an analysis of teaching.

The writer proposes the abandonment of all specialized courses as history, principles, and psychology of education, etc., as such. Instead, a two-year program should be instituted which might be designated simply as Education I, II, III, and IV, by semesters, carrying three or four units of credit per semester. This would normally represent the work of the junior and senior years, and, with practice teaching, constitute the program leading to certification. One or more specialized courses might be left to election, e.g., special methods courses in the principal subjects to be taught.

Such a reorganization obviously will not of necessity represent any fundamental change in content from prevailing practices. It would, however, destroy many barriers which entangle the solution of such problems as freedom from precedent, overlapping of content, inequities in time allotments, limited perspectives of specialists, and the like. A historical superstructure would be carried away, giving freedom for building anew upon a basis of analysis of teaching, supervision, and administration. The results of such analysis need not be wholly binding or exclusive. Activity analysis is not the sole and final method. It is merely good empiricism. For a long time yet, if not forever, education will combine aspects for both the arts and the sciences. Good, hard sense still has its place, and we have every right to provide for what we think a teacher *ought to know* and *might well use* in addition to preparing her for those activities found by analysis of educational processes of today.

The fusion course, as here described, must be the co-operative product of the entire faculty of education. In it there is no place for special pleading if its goals are to be attained. That certain of the present overspecialized divisions of the general field of education will lose some ground, and that others will gain, is to be expected. Just what these shifts might be is highly conjectural. As a guess, history of education would center more about the development of the American school system. Child hygiene and child study would probably gain some ground. The courses now designated as "Secondary Education" might undergo rather marked changes since, judged by

the content divisions and treatments in some of the textbooks, they are often amplified compilations from the history, psychology, principles, and organization of education.

The central idea in the proposal advanced here is the opportunity afforded by a fusion course for an unprejudiced survey of the field of education and the building of a curriculum *de novo*. All discussion of changes in balance of content and method of approach is to be regarded as unessential and secondary. In particular, no brief is held for activity analysis. Educational psychology would be given a chance to demonstrate its value in the training of prospective teachers exactly on equal terms with the other divisions of the field of education.

CHAPTER X

TRAINING AND EQUIPMENT OF TEACHERS OF EDUCATIONAL PSYCHOLOGY

Joseph Peterson, George Peabody College for Teachers

For our particular purpose "teachers of educational psychology" may conveniently be divided in the United States into three classes: (1) teachers of psychology in sub-collegiate institutions who have little or no training at all either in psychology or educational psychology, (2) teachers of educational psychology in state normal schools and state teachers colleges, and (3) teachers of this subject in departments of universities or schools of education in state universities and in the better private colleges and universities. We shall consider these three groups in order.

There are yet numerous high schools which take part in the training of teachers. Since most, if not all, states require of certificated teachers courses in psychology and educational psychology, these institutions attempt to offer such courses. Whether these courses are named "psychology" or "educational psychology" courses, and whatever tests are used, they may be classed as educational psychology, since they are put into the institutions to fulfil certain state requirements in professional subjects. It is a question whether courses taught as these are taught are as valuable to the students as other courses in more elementary science would be; but they are there. An illustration of the conditions in one somewhat typical state five years ago will indicate the probable status of such psychology teaching in many states at the present time. We take our data from a recent report by the School Service and Research Bureau of the University of Kansas. It reveals "a situation which merits earnest consideration." The high schools in the state were divided into three groups: those employing not more than ten teachers, those employing eleven to twenty-nine teachers, and those with thirty or more teachers. It was found by F. P. Obrien (139) in 1926

that in all three groups of schools the teachers who have the least preparation in the subjects taught teach sociology, economics, physiology, psychology and physiography. Since none of these five subjects represents more than one or two semesters of work in the high-school curriculum, it is more easy to understand why so few teachers are well prepared in them and why schools have not more generally demanded adequate preparation in these subjects when employing those who are to teach them. However, no explanation of how the situation has come to exist can readily excuse the injustice which is likely to result to those students who are assigned to teachers that are obviously not prepared for the work. A most likely consequence is that under such circumstances the instruction will be characterized by enslavement to a textbook and that formalized memorizing of unvitalized facts, without much emphasis on their functional value, will frequently prevail.

With respect to psychology, in which we are especially interested, one of Obrien's tables shows that of the 189 teachers of this subject 40 per cent have had less than five semester hours' instruction in psychology, and that 86.5 per cent have had only five hours or less. The really tragic thing is that "practically all of the psychology" is "taught to meet a requirement in the normal training courses which are offered in the high school for the preparation of rural-school teachers" (139, p. 18). The subjects named in the quotation are doubtless among the hardest to teach effectively.

The teachers of psychology and educational psychology have been more or less directly studied as to their qualifications, working conditions, facilities, etc., by Whipple (199) in 1910, Peterson and Dunkle (148) in 1926, Peterson (145, 146, 147) in 1927, 1928, 1931, Jarrett (81) in 1928, Clara L. Robinson (160) in 1927, and Haggerty (215). In 1908 the American Psychological Association appointed a Committee on the Teaching of Psychology. Whipple was assigned the normal schools and mailed a printed questionnaire to 259 institutions (189 public and 70 private) "listed as normal schools in the report of the United States Commissioner of Education for 1907." Only 100 replies (48 from public and 16 from private normal schools) were received from the teachers addressed. These teachers reported degrees or diplomas as follows: normal-school diploma, 5; Bachelor's degree, 64; Master's degree, 47; Doctor's degree, 32; medical degree, 2; honorary degree, 3; total, 153. Unfortunately, there was no information secured as to major and minor fields of training. It is

probably correct to assume that the non-reporting institutions were, in general, among the most poorly prepared. This is indicated by the states listed as not reporting, and agrees with the writer's experience with such replies. The median time of teaching experience of the 100 teachers was found to be 8.37 years, and the quartile deviation 3.34 years. Only 27 normal school teachers had published articles or books on psychology, but several of these were theses or other studies published before their normal-school work began. Most of the 22 who reported that they had attempted some original work found it "hard to get the time, energy, or incentive to do such work" (199, p. 10).

The following recommendation with reference to the training of psychology teachers was made and was apparently accepted by the Association:

The teacher of normal-school psychology should have received at least three years of special graduate training in one or more universities. This training should be such as is required for the doctor's degree, and should include a thorough acquaintance with laboratory methods. The study of the science of education should have received a degree of attention at least equal to that required for a minor subject for the doctorate, and the teacher should have paid special regard to the points of contact between these two subjects [199, p. 30].

It is also suggested on the following page that, given such training, "the normal-school teacher of psychology should have his work so arranged that he secures the time and energy required for productive *original work*." The reasons for these recommendations are worth considering, though we must omit them here. Of course, even the degree-granting teachers colleges today are far behind this ideal.

Recently Clara L. Robinson (1927) has carried out a study (160) that is similar in some respects to that by Whipple. From forms sent to 195 institutions (110 normal schools and 85 teachers colleges) with requests for data, 91 replies from 129 teachers of psychology were received, 46.7 per cent of the institutions addressed. Thirty-eight states were represented. Of the 128 teachers supplying data, 10 had the Bachelor's, 83 the Master's, 2 the D.Ed., and 33 the Ph.D. degree. Undoubtedly those teachers who replied were better trained than those who did not reply. It is unfortunate that Robinson's data do not give major and minor lines of training; but there

has evidently been slight, if any, improvement in the degree of training of the psychology teachers in normal schools (and possibly also teachers colleges), since Whipple found 32 per cent of those replying with doctor's (Ph.D.) degrees and Robinson finds but 27 per cent with Ph.D. or D.Ed. degrees. The median years of teaching psychology she found in 1927 to be 7.33 years as compared with 8.37 years by Whipple. For ill prepared teachers this *may* be an improvement! Fifty-eight of Robinson's group of teachers reported original work being done, but the work of only 5 of these were characterized as "research," and of 4 as "writing." As in Whipple's study, little time or opportunity was allowed teachers for original work. Jarrett (81) gives no definite and usable data on the training of teachers as to lines of work for their degrees or highest degrees held, but it is evident from his Tables V and VI (opposite p. 24) that in the 83 degree-granting normal schools and teachers colleges there are only 25 teachers of 617 courses in psychology and in educational tests who have the Ph.D. degree. The number of teachers with the Doctor's degree is probably much smaller, because each teacher offers several courses. None of the teachers of 128 courses offered in the 35 state normal schools not granting degrees, reported the Ph.D. as the highest degree held, and only 4 reported the Master's degree and one the Bachelor's. One hundred twenty-three of these 128 courses were taught by teachers for whom no degrees were reported. This study did not cover teachers of psychology directly but only the courses offered. The data could easily, however, have been reported in a form serviceable for other purposes, data of a sort that are yet seriously needed. It is hoped that later investigators will take note.

On November 18, 1925, Peterson and Dunkle (148) sent out a letter by the senior author (Peterson) and President Payne of George Peabody College for Teachers (then president of the Southern Association of Teacher-Training Institutions) asking for replies to a questionnaire on the training of teachers and on equipment of libraries and laboratories for the teaching of psychology. The letters were addressed to the presidents of normal schools and state teachers colleges, and to the appropriate deans of state universities in Alabama, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and

West Virginia, explaining the object of the investigation and asking for their co-operation in having every part-time or whole-time teacher fill out the questionnaire sheets. (By an error on the part of the secretary the other southern states were omitted.) The names of these officers of the institutions were obtained from the 1925 *Educational Directory*. Sixty-one letters were sent out, and 22 institutions (36 per cent) responded. These institutions were divided into three groups as follows: (a) 2 standard colleges and 2 state universities, 12 instructors; (b) 8 normal schools and 3 teachers colleges for whites, 18 instructors; and (c) 2 normal schools and 3 colleges for Negroes, 7 instructors. In the first group 8 had the Ph.D., 3 the Master's, and 1 the Bachelor's degree as the highest degree, 7 having done major work in psychology and 5 in other lines. They had published 57 "contributions to psychology" but mainly as graduating theses. In the second group the corresponding degrees were 1, 15, and 2, only 7 having their major training in psychology and 9 in other fields. In the Negro group there were 1 Ph.D. degree, 3 Masters, and 2 Bachelors. Two had done major work in psychology. The senior author reported the results of this preliminary investigation on April 2, 1926, to the Southern Society for Philosophy and Psychology, then meeting in the University of Kentucky. After lengthy discussion in the business meeting, the Society passed a resolution (148, p. 396) defining standards for teachers of psychology (including educational psychology). These standards require the Master's degree in psychology or equivalent training of teachers of elementary psychology and the Doctor's degree in psychology or equivalent training of teachers of all other than elementary courses. A committee of five was appointed to co-operate with southern institutions toward the maintenance of these standards, the purpose being to protect the student who registers for courses in psychology.¹

The committee proceeded at once with the work assigned it. An explanatory letter and certain blank forms to be filled out by instructors in psychology (145; pp. 484-86), together with a reprint of the

¹ The writer was appointed to serve as chairman of this committee, in which capacity he served for five years. He resigned in the 1931 spring meeting of the Society for lack of time, after two reports (1928, 1931) had been presented to the Society and later printed and circulated among southern institutions.

report on the preliminary findings and the resolutions of the Society, were sent out to the presidents of about 420 institutions in the sixteen southern states (including Maryland, Oklahoma, and West Virginia) and in the District of Columbia, which have usually been included in the territory of the Society. These institutions included all those listed in the 1926 *Educational Directory* as state or municipal universities and colleges, normal schools and teachers colleges, junior colleges, and all private institutions in these same classes, whether denominational or independent. One hundred fifty-eight institutions responded, approximately 38 per cent of all those addressed. The institutions which replied included the most important non-sectarian, private institutions, and most of the state universities and the better state teachers colleges in the section covered, and showed a real willingness to co-operate. Many expressions of appreciation of the work of the committee were received. Data on the major line of work in training and the highest degree of 302 instructors were also received. These data are summarized in Table I.

Table I shows clearly that the 63 teachers of psychology and educational psychology who have received their degrees for major work in psychology have the strongest tendency to be well prepared for their work. The 239 teachers who have done major work in other lines, including educational psychology, have not been through so long academic training, even though most of what training they had was not in psychology. Educational psychologists, as classified by the major subjects in which they were trained, show a tendency like that of the philosophers, the educationists, historians, political scientists, theologians, linguists, physical scientists, etc., who attempt to teach psychology, not to go beyond the Master's degree.

Since the names of the major and minor professors in the training of these persons now teaching psychology and educational psychology, as well as the institutions granting the degrees, were called for, and since in several cases special inquiries as to the accuracy of the reports were sent to the major professors named, it is probable that the data regarding lines of training and highest degree are reasonably accurate. (It was found that a number of teachers trained in other lines than psychology had a strong

tendency to overstate the amount of their training in psychology and educational psychology. One does not like to think of teachers as being so "adaptable" as this!) In general, it was found *that the lower one's degree of training is the more ready one is to accept work in lines for which one is not prepared.* This is probably equally true in other lines of science, literature, and art. Those who have

TABLE I

THE DISTRIBUTION OF 302 INSTRUCTORS IN PSYCHOLOGY AS TO THE HIGHEST DEGREE OBTAINED AND MAJOR LINE OF WORK IN GRADUATE TRAINING

MAJOR DEPARTMENT IN TRAINING	No. OF IN-STRUC-TORS	HIGHEST DEGREE OBTAINED								
		Ph.D. or Ed.D.		M.A. or M.S.		B.A.		Degree Not Indicated		
		No.	Per-cent-age	No.	Per-cent-age	No.	Per-cent-age	No.	Per-cent-age	
Psychology.....	63	40	63	20	32	3	5	0	0	
Educational psychology....	22	7	32	15	68	0	0	0	0	
Philosophy.....	23	9	39	12	52	2	9	0	0	
Education.....	111	25	23	69	62	15	13	2	2	
History, political and social science.....	16	2	12	10	63	4	25	0	0	
Theology.....	1	22	3	14	11	50	8	36	0	0
Biblical literature.....	2									
Religious education.....	1									
Language.....	8									
Biology.....	3									
Mathematics.....	1									
Physical sciences.....	4									
Agricultural education....	2									
Department not given.....	45	5	11	18	40	5	11	17	38	
Total.....	302	91	30.2	155	51.3	37	12.2	19	6.3	

but slight professional training and reputation are also more willing to impose their naïveté on unsuspecting students. This fact certainly indicates the need of committees of specialists in different lines of college and university work to define the degrees of training necessary for the assumption of teaching positions in those respective lines. It is very important that the actual facts and discoveries in different lines of scientific research be taught in their essentials without distortion or omissions due either to ignorance or to ulterior motives, such as the justification of personal, sectarian, or political views.

A four-page report (defining the standards adopted by the Southern Society, giving the institutions and instructors qualified to offer advanced, and those qualified only for elementary psychology courses, and suggesting means by which the committee, as a representative of the Society, could aid the institutions toward improving their standards) was published (146) in May, 1928. Three copies of this report were sent to the registrar of each of the 420 institutions. This first report was later again sent to all these institutions as proof-sheets of a new report, with requests that each institution revise and bring up to date the data concerning itself. In case names of new instructors were added or the status of instructors changed, data justifying such changes were to be sent also or the changes would not be made. After presentation to the annual Society meeting in the University of Virginia, corrected proofs were again sent to the institutions for recheck. The second or latest report (147) was published and circulated in May, 1931.

From these two reports it is possible to note the improvement in the training of teachers of this section of the country between the years 1928 and 1931, so far as the co-operating institutions and instructors are concerned. These are known to include most, if not all, the institutions really qualified to teach even the elementary psychology courses. Table II shows the progress in the three-year period, 1928-31, as to the qualification of teachers for the teaching of psychology (including educational psychology). Only those individuals are included in the report who are in the institutions, either as teachers, or as research workers with Ph.D. degrees. Graduate students who are teaching or assisting as fellows are not included. This table summarizes the data of the two reports, and it also adds the number of psychologists having their doctorates in the field of psychology and educational psychology per 1,000,000 population in each state and in all the seventeen states combined. There is but little space for comment. It is questionable whether the gains in the "partly qualified" institutions and psychologists are really valuable in colleges and universities, so long as Ph.D. psychologists (or psychologists of equivalent training, including research) are available. Table II lists 151 (including 3 Negroes) of satisfactory training, but only 8 of these are found in the degree-offering state teachers col-

TABLE II

THE NUMBER OF TEACHERS IN INSTITUTIONS OF LEARNING IN SIXTEEN SOUTHERN STATES AND THE DISTRICT OF COLUMBIA QUALIFIED TO TEACH PSYCHOLOGY, AND ALSO THE NUMBER OF INSTITUTIONS QUALIFIED

STATES																		MEAN PER STATE
Ala- bama	Ar- kansas	Dis- trict of Co- lumbia	Flori- da	Geor- gia	Ken- tucky	Louis- iana	Mary- land	Miss- sippi	Mis- souri	North Caro- lina	Okla- homa	South Caro- lina	Ten- nessee	Texas	Vir- ginia	West Vir- ginia		
<i>For year 1928:</i>																		3.06
No. of institutions:																		2.53
Qualified.....																		
Partly qualified.....																		
<i>No. of teachers:</i>																		5.77
Qualified.....																		4.00
Partly qualified.....																		
<i>For the year 1931:</i>																		
No. of institutions:																		4.47
Qualified.....																		3.71
Partly qualified.....																		
<i>No. of teachers:</i>																		8.88
Qualified.....																		6.35
Partly qualified.....																		
<i>No. of Ph.D. psychologists in 1931 to 1,000,000 population, 1930 census.....</i>																		In the 17 States 6.06
3.40	1.08	14.29	4.08	2.75	4.20	2.38	12.20	1.00	4.13	4.10	2.51	1.72	5.88	2.06	5.38	4.74		
Per Cent																		Mean, Figured from Means Above (Per Cent)
<i>Percentage of Gain in 1931 over 1928:</i>																		
Institutions:																		
Qualified.....																		46
Partly qualified.....																		47
<i>Teachers:</i>																		
Qualified.....																		54
Partly qualified.....																		59

leges, and no such psychologist seems to be included in the faculties of any normal school. This indicates an enormous gap in training between teachers of psychology in teacher-training colleges and normal schools, on the one hand, and standard colleges and universities on the other. The presidents of the former group of institutions seem not to believe in having psychologists who are adequately trained to keep their students in touch with the living centers of psychological research. Our committee has, in both reports, offered to furnish to any institution asking for such aid the names of available psychologists, but no calls for the information came. Several psychologists sent in their names and indicated their full qualification for teaching advanced work. *One of the greatest* problems for psychologists today is to have real psychologists introduced into these teacher-training colleges where their services are almost unappreciated, probably because the administrators themselves have had no vital connection with research work in psychology and do not appreciate what better-trained psychologists would mean to their students. Most of the eight men in the teachers colleges who are qualified were not there in 1928, and at least one more has come since the 1931 report was published. The condition here indicated does not seem to be much better in other sections of the country. Few original contributions come from the teachers colleges. Haggerty (215) has found that there are in the United States 1,280 institutions of higher learning, including teachers colleges, normal schools, and junior colleges, most if not all of which probably offer psychology in some form. MacDonald (111, p. 282) has found support for this view. Haggerty (215) finds that the 893 members and associates of the American Psychological Association in 1929 are accounted for as follows: 200 are not connected with any institution, 241 are on the faculties of only 12 institutions (an average of over 20 per institution), and the other 452 are in 172 institutions besides the 12 mentioned. This leaves 1,096 institutions that have on their faculties no psychologist that is a member or an associate of the most representative association for psychologists in America. Only 24 of the 236 teachers colleges in 1929 had a member or an associate of this Association on their faculties.

As for the better private and state colleges and universities, these

are really the homes of the psychologists. Educational psychologists seem to be no new species. Of 303 psychologists listed in the *American Psychological Association Year Book* for 1931, we selected 83 who are clearly working in educational psychology and 220 who are working in experimental, comparative, and other fields and not in educational psychology directly. All selected had been awarded Ph.D. or D.Ed. degrees and were listed in the *Psychological Register* (1931). All were also listed in the *Year Book* as teaching psychology or educational psychology. No one who taught in both these divisions was included. Their publications up to and including 1925, as given in the *Register*, were enumerated, with results as follows: Total publications by the 83 numbered 1,270; mean per psychologist, 15.3. Total for the 220 numbered 3,263; mean per psychologist, 14.8. The difference of 0.5 is not significant. Also, counting up and averaging the total publications to and including 1925 by 53 starred psychologists in Cattell's list (25), divided into 10 educational psychologists and 43 other psychologists, we obtained mean publications per psychologist as follows: educational psychologists, 54.9; the other psychologists, 41.6; mean of all combined, 44.1. (Those listed as educational psychologists were Buchner, W. F. Dearborn, Gates, Judd, Kelley, Ogden, Pintner, Thorndike, Whipple, and Helen T. Woolley. If Terman and Starch were included, the mean would be 53.4, and of the other psychologists it would then be 41.3. If the greatest producer among the ten educational psychologists were not included, the mean would drop to 40.0.) There is no significant group difference, but individual differences are marked in both of the groups (unstarred with starred and starred alone) compared. There may be several good reasons why there are so few educational psychologists among the starred men, but it is evident that practically all these psychologists, starred and others, however poor our criteria of comparisons may be, differ in productiveness from those teaching psychology in normal schools and teachers colleges taken as a group. Few of the latter really come into contact with psychology in the making and psychologists at productive work.

CHAPTER XI

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THE NATIONAL SOCIETY OF COLLEGE TEACHERS OF EDUCATION

CONSTITUTION

REVISED TO MARCH, 1925

ARTICLE I. NAME

This association shall be styled The Society of College Teachers of Education.

ARTICLE II. PURPOSE

It shall be the purpose of this Society to promote and improve the teaching of education in the colleges and universities of the country. The Society recognizes three general fields for its operation as follows: (1) problems of the administration of departments of education, (2) problems of the teaching and organization of courses in education, and (3) problems of research in the general field of education.

ARTICLE III. MEMBERSHIP

SECTION 1. Membership shall be confined to teachers and administrators in recognized colleges and universities who are engaged in teaching and research in education.

SECTION 2. All those persons who were in attendance upon the first meeting in Chicago, and who shall sign this constitution and pay the membership fee, shall be regarded as charter members. All other members shall be elected by the Executive Committee.

SECTION 3. Members shall be elected by the Executive Committee, and shall pay annual dues. Other funds necessary for the maintenance of the Society shall be raised by assessments levied on the members of the Society.

ARTICLE IV. OFFICERS

SECTION 1. The affairs of the Society shall be placed in the hands of an Executive Committee consisting of the president and secretary during their terms of office, the retiring president and secretary for one year from the date of their retirement, and three other members of the Society, each for a term of three years, one to be elected each year at the annual meeting. The president shall preside at the meetings of the Society, and the secretary shall assume all duties usually devolving upon such an officer. In addition, he shall take charge of the funds of the association and expend them under the direction of the Executive Committee. The president shall be elected annually and the secretary for a term of three years, by the active members of the Society.

SECTION 2. The Executive Committee shall have power to fill vacancies occurring in the offices of president or secretary-treasurer.

ARTICLE V. MEETINGS

There shall be one meeting of the Society each year, to be held at the same time and place as the meeting of the Department of Superintendence of the National Education Association until otherwise determined by vote of the Society. The Executive Committee shall have charge of all details in arranging for each meeting.

ARTICLE VI. AMENDMENTS

Amendments may be made to this constitution by a two-thirds vote of the members of the Society at a meeting subsequent to that at which the amendment has been proposed in writing.

ARTICLE VII

By-laws may be adopted or amended at any annual meeting by a two-thirds vote of active members present and voting.

BY-LAWS

1. The Executive Committee is authorized to appropriate such sums as may be necessary and available from the funds of the Society for secretarial help in the conduct of the work of the secretary.

2. The Society shall defray the necessary expense of the secretary, including travel, at the annual meeting.

3. In the election of members into the Society the Executive Committee shall be governed by the following considerations: (*a*) evidence of permanent interest in the work of education in colleges and universities; (*b*) active participation in such work as evidenced by present position; (*c*) training of such a nature as to indicate real contribution to the work of the Society, or evidence of actual contribution in the past.

4. The annual dues of the Society shall be two dollars (\$2.00).

MEMBERSHIP LIST¹

NATIONAL SOCIETY OF COLLEGE TEACHERS OF EDUCATION

1931

- Adams, F. J.: Adjunct Professor of Educational Psychology, University of Texas, Austin, Tex.
- Adams, Karl L.: President, Northern Illinois State Teachers College, DeKalb, Ill.
- Alexander, Carter: Professor of Education, Room 215, Teachers College, Columbia University, New York City.
- Alger, John L.: President, Rhode Island College of Education, Providence, R.I.
- Alleman, Lenisse J.: Head, Department of Education, State Normal College, Natchitoches, La.
- Allen, E. P.: Head, Department of Education, Hillsboro Junior College, Hillsboro, Tex.
- Allen, Edward E.: Director, Perkins Institution for the Blind, Watertown, Mass.
- Almack, John C.: Professor of Education, Leland Stanford Junior University, Stanford University, Calif.
- Amberson, Jean Downey: Associate Professor of Home Economics, Pennsylvania State College, State College, Pa.
- Anderson, Earl W.: Associate Professor of Education, Bureau of Educational Research, Ohio State University, Columbus, Ohio.
- Archer, Clifford: Head, Department of Education, Teachers College, Moorhead, Minn.
- Arnold, Henry J.: Associate Professor of Psychology, Wittenberg College, Springfield, Ohio.
- Ault, Jesse W.: Acting Dean of Education, San Diego State Teachers College, San Diego, Calif.
- Austin, E. L.: Head, Department of Education, Michigan State College, East Lansing, Mich.
- Ayer, Fred C.: Professor of Educational Administration, University of Texas, Austin, Tex.
- Bagley, William C.: Columbia University, New York City.
- Bain, Winifred E.: Instructor, Kindergarten-First-Grade Education, Teachers College, Columbia University, New York City.

¹ Total membership, 541.

- Baldwin, J. W.: Adjunct Professor of the Art of Teaching, Box 1533, University of Texas, Austin, Tex.
- Ballou, Frank W.: Superintendent of Schools, Washington, D.C.
- Bamberger, Florence E.: Professor of Education, Johns Hopkins University, Baltimore, Md.
- Barr, A. S.: Associate Professor of Education, University of Wisconsin, Madison, Wis.
- Barrett, Harry M.: Director, College of Education, University of Colorado, Boulder, Colo.
- Barton, William A., Jr.: Head, Department of Education, Coker College, Hartsville, S.C.
- Bathurst, James Elmer: Head, Department of Education, Birmingham Southern College, Birmingham, Ala.
- Bear, Robert Murray: Assistant Professor of Education, Dartmouth College, Hanover, N.H.
- Beasley, Bancroft: Assistant Professor of Education, Harvard University, Cambridge, Mass.
- Beik, A. K.: Professor of Education, New York State College for Teachers, Albany, N.Y.
- Bell, Reginald: Assistant in Educational Research, School of Education, Stanford University, Stanford University, Calif.
- Benjamin, Harold: College of Education, University of Minnesota, Minneapolis, Minn.
- Bennett, Luther J.: Professor of Education, Ohio Wesleyan University, Delaware, Ohio.
- Benson, C. E.: New York University, New York City.
- Bentley, John E.: Head, Department of Educational Psychology, American University, Washington, D.C.
- Benz, Harry Edward: Assistant Professor of Mathematics, College of Education, Ohio University, Athens, Ohio.
- Berry, Charles S.: Ohio State University, Columbus, Ohio.
- Betts, George H.: Director of Educational Research, School of Education, Northwestern University, Evanston, Ill.
- Black, N. Henry: Conduit Head, Madingly Road, Cambridge, England.
- Blackburn, J. Albert: Associate Professor of Education, New Jersey College for Women, New Brunswick, N.J.
- Blauch, L. E.: Professor of Education, North Carolina College for Women, Greensboro, N.C.
- Bly, John Marius: Associate Professor of Educational Psychology, St. Olaf College, Northfield, Minn.
- Bolton, Frederick E.: Professor of Education, University of Washington, Seattle, Wash.
- Borgeson, F. C.: Assistant Professor of Elementary Education, New York University, New York City.

- Boyer, Carl Wright: Assistant Professor of Education, Muhlenburg College, Allentown, Pa.
- Breed, Frederick S.: Associate Professor of Education, University of Chicago, Chicago, Ill.
- Breitwieser, J. V.: University of North Dakota, Grand Forks, N.D.
- Brewer, John M.: Associate Professor of Education, Graduate School of Education, Harvard University, Cambridge, Mass.
- Briggs, Thomas H.: Professor of Education, Columbia University, New York City.
- Brim, Orville G.: Professor of Elementary Education, Ohio State University, Columbus, Ohio.
- Brinkley, Sterling G.: Associate Professor of Education, Emory University, University, Ga.
- Brooks, Fowler D.: Head, Department of Education and Psychology, DePauw University, Greencastle, Ind.
- Brooks, John D.: Professor of Education and Head of Department, Wilson College, Chambersburg, Pa.
- Broom, M. Eustace: Department of Education, University of Southern California, Los Angeles, Calif.
- Brownell, W. A.: Professor of Educational Psychology, Duke University, Durham, N.C.
- Brubacker, A. R.: President, New York State College for Teachers, Albany, N.Y.
- Bruce, William F.: Head, Department of Education, State Normal School, Oneonta, N.Y.
- Buckingham, B. R.: Lecturer, Graduate School of Education, Harvard University, Cambridge, Mass.
- Buckner, Chester A.: Professor of Secondary Education, University of Pittsburgh, Pittsburgh, Pa.
- Burgess, Thomas O.: Head, Department of Psychology and Education, Concordia College, Moorhead, Minn.
- Burnham, W. H.: Professor of Pedagogy and School of Hygiene, Clark University, Worcester, Mass.
- Buros, Oscar K.: Washington School, Millburn, N.J.
- Burt, Carl D.: Professor of Education, Oberlin College, Oberlin, Ohio.
- Buswell, G. T.: Professor of Educational Psychology, University of Chicago, Chicago, Ill.
- Butterworth, Julian E.: Professor of Rural Education, Cornell University, Ithaca, N.Y.
- Bynum, Charles Hudson, II: Winston-Salem Teachers College, Winston-Salem, N.C.
- Caldwell, Otis W.: Lincoln Institute School of Experimentation, Teachers College, Columbia University, New York City.

- Cameron, Edward H.: Professor of Educational Psychology, University of Illinois, Urbana, Ill.
- Camp, Harold L.: State Teachers College, Indiana, Pa.
- Carmichael, A. Max: Professor of Education, Ball State Teachers College, Muncie, Ind.
- Carpenter, W. W.: Professor of Education, University of Missouri, Columbia, Mo.
- Carroll, Herbert A.: Assistant Professor of Educational Psychology, University of Minnesota, Minneapolis, Minn.
- Carrothers, George E.: Professor of Education, School of Education, University of Michigan, Ann Arbor, Mich.
- Carter, Ralph E.: Extension Center, Indiana University, Indianapolis, Ind.
- Carter, Thomas M.: Professor of Education and Supervisor of Teacher Training, Albion College, Albion, Mich.
- Cattell, J. McKeen: Editor, *School and Society*, Garrison, N.Y.
- Cavan, Jordan: Professor of Education, Rockford College, Rockford, Ill.
- Chace, Edith P.: Director, Home Economics, Pennsylvania State College, State College, Pa.
- Chadbourne, Ava H.: Associate Professor of Education, University of Maine, Orono, Me.
- Chamberlain, Leo M.: Assistant Professor of Education, University of Kentucky, Lexington, Ky.
- Chambers, Will G.: Dean, School of Education, Pennsylvania State College, State College, Pa.
- Champlin, Carroll D.: Professor of Education, Pennsylvania State College, State College, Pa.
- Charters, W. W.: Ohio State University, Columbus, Ohio.
- Chase, W. Linwood: Assistant Professor of Education, Boston University, Boston, Mass.
- Chidester, Albert J.: Professor of Education, Berea College, Berea, Ky.
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- Clarke, Frances Marguerite: Assistant Professor, Connecticut College, New London, Conn.
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- Cleveland, A. A.: Dean, School of Education, State College of Washington, Pullman, Wash.
- Cochran, Thomas E.: Professor of Education and Psychology, Centre College, Danville, Ky.
- Coffman, Lotus D.: President, University of Minnesota, Minneapolis, Minn.
- Cole, Robert Danforth: Professor of Secondary Education, University of North Dakota, Grand Forks, N.D.

- Colgan, Edward J.: Colby College, Waterville, Me.
- Collins, J. E.: Miami University, Oxford, Ohio.
- Cook, John H.: Dean, School of Education, North Carolina College for Women, Greensboro, N.C.
- Cook, Raymond M.: Instructor in Educational Psychology, University of Texas, Austin, Tex.
- Cope, A. B.: Professor of Educational Psychology, Evansville College, Evansville, Ind.
- Corey, Stephen Maxwell: Associate Professor of Psychology, DePauw University, Greencastle, Ind.
- Cottrell, Donald P.: Assistant Professor of Education, Teachers College, Columbia University, New York City.
- Counts, George S.: International Institute, Teachers College, Columbia University, New York City.
- Coursault, Jesse H.: Professor of Faculty Education, University of Missouri, Columbia, Mo.
- Courtis, S. A.: Professor of Education, University of Michigan, Ann Arbor, Mich.
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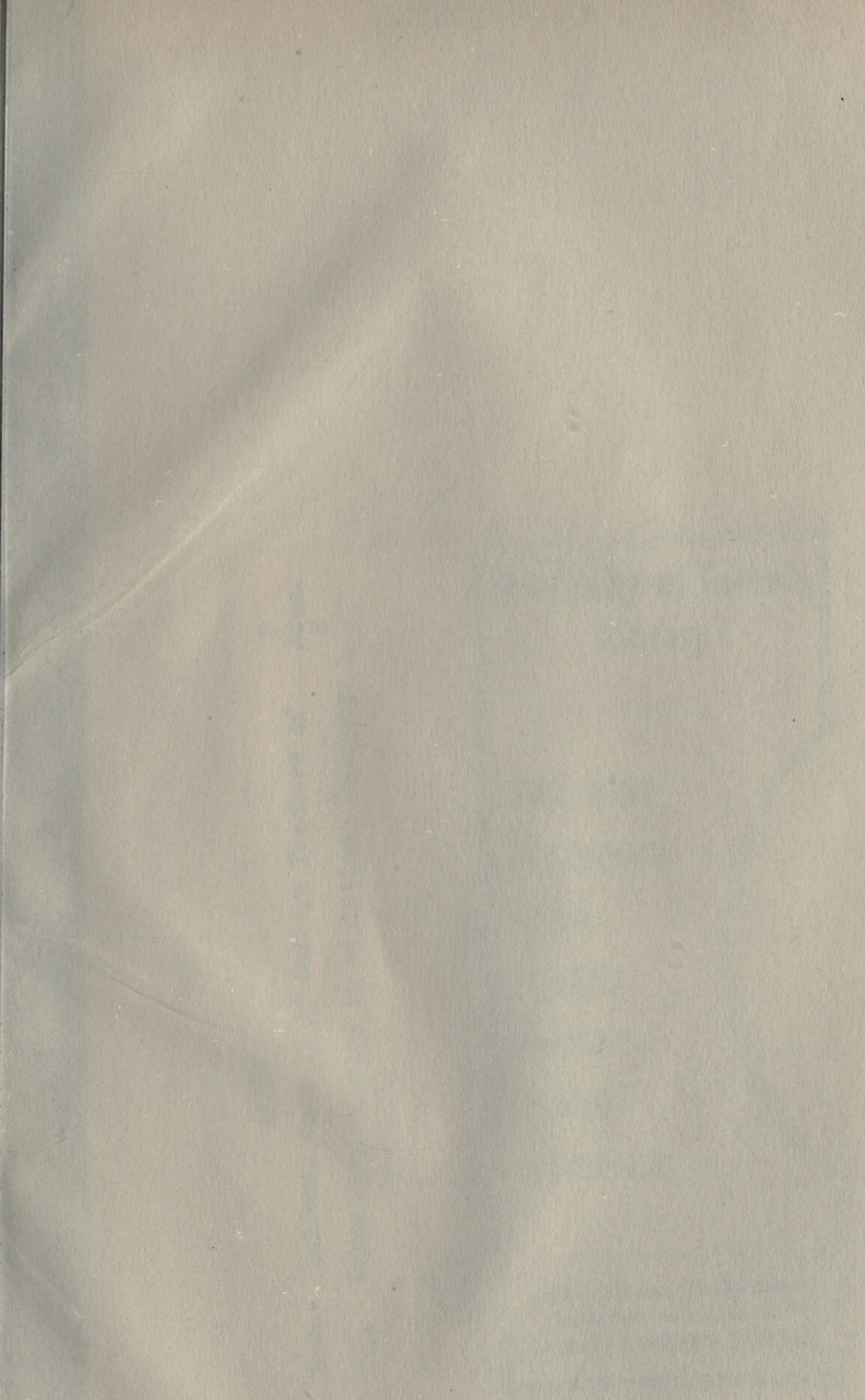
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